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Faculty of Architecture and Design

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Contents

Foreword

ADAMarts comprises essays dedicated to architecture and media arts. The architectural contributions in this volume focus on a wide range of areas. In response to the question of whether it is possible to create a new place with a new functional and sociocultural purpose by recycling and reusing existing degraded landscape structures, Anna Saurova provides spatial design guidelines for the creation of a community village of aviation enthusiasts on the territory of the former military airfield in Vaiņode. Efe Duyan focuses on the emphasis on the meaning of architecture according to semiotics, which has been prominent since ecology and social concerns became essential issues in architecture. The article revisits semiotics in architecture in light of recent neuroscientific research on perception. "What course will architecture take in the wake of the post-digital?" – this hard question is raised by Rudolfs Dainis Šmits, and for him, it seems to a resonance today with the topics of the 1970s: new technologies, civil protests, the environment, the oil-natural gas crisis, and energy conservation
The articles by media arts researchers also include a broad spectrum of topics. The article "A Use Case for Diffusion Models in the Generation of Hybrid AI, Multi-Modal Live Performances" by Sabrina Durling-Jones & Aigars Ceplitis offers insight into the importance of experimentation by artists as new AI approaches become accessible in the public sphere. This paper by Chris Hales presents artistic research based on experimentation with image generation representing the River Daugava. The contribution by Ellen Pearlman discusses certain aspects involved in creating the GPT cloud-based character AIBO.

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Pedagogical disruptions

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Abstract

"What would be the ideal education to prepare anyone to produce in today's society: Fake news, the rise of influences, the waning of the Western culture, a kind of unprecedented amalgamation of anything goes | nothing works?"
Rem Koolhaas | After Architecture in Virgil Abloh, "Figures of Speech", 2022

Since the turbulent constructivist revolution, the emergence of the 'old' Bauhaus school in the 1920s and 1930s and the radical pedagogical innovations of the 1960s and 70s pursuant to another 50 years, we may now expect the discipline of architecture to be on the verge of a new wave. What course will architecture take in the wake of the post-digital? There seems to be a resonance today with the topics of the 1970s: new technologies, civil protests, the environment, the oil-natural gas crisis and energy conservation. Past experimentation shows evidence that disruptions in academia and practice were essential to foster creativity and the emergence of new ideas in architecture.
Beatriz Colomina, historian and founder of the Modernity and Media PhD program at Princeton has extensively researched mid. 20th-century practice, media and pedagogy. She investigated the significance of media types in promoting architectural ideas and how publications and exhibitions of experimental and never-built work were essential in the development of architecture and its discourse. Colomina's survey and research of the immediate past argues the importance of 'disruptions' providing space for creativity to flourish.
After the political, social and moral failures of World War II, architects were reluctant to adapt or submit to a singular ideology. Architects were hesitant to accept the modernist manifesto which swept away history and ignored historical precedent. Post-modernist response to modernists and the emerging avant-garde radically changed architectural practice and pedagogy. There were two primary post-war education models in America: The Ecole des Beaux-Art (the French model) and The American Academy. The Bauhaus school was reactionary to the Ecole des Beaux-Arts. The other track was homegrown American vernacular, a blend of regionalism and pragmatism.
The Texas Rangers a team of emerging architects and educators lead by Harwell H. Harris, Colin Rowe, Bernhard Hoesli, Robert Slutzky and John Hejduk, among others. The Rangers disrupted the status quo with an alternate approach to architectural pedagogy. This short-lived 'underground' phenomenon transformed architectural education sending sparks throughout American academic institutions that reached Europe and impacted architecture education worldwide.
Architectural practice, learning and pedagogy have been influenced and guided by the constant and unpredictable disruptions witnessed throughout the second half of the 20th century. We must hedge the current and future direction of architecture watering the roots vital to praxis, learning and pedagogy by maintaining research, experimentation and those incidental 'gaps' to ensure architecture's intellectual content and participation in cultural production and idea building.

Keywords

radical pedagogy, architecture pedagogy, architectural experimentation, post-digital, Texas rangers, Bauhaus school

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Radical

adjective
rad·i·cal [*ra-di-k l*]

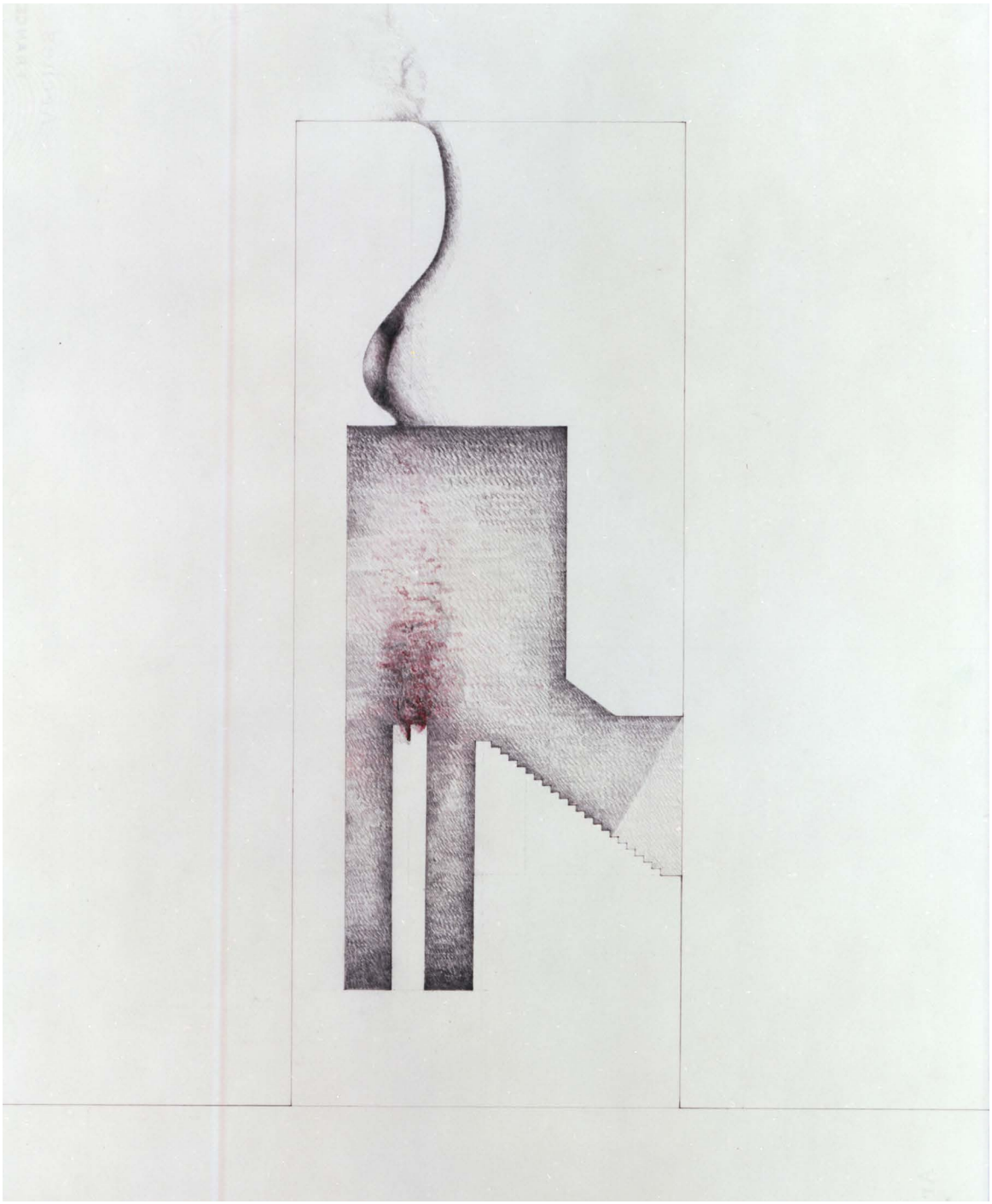
1. : of, relating to, or proceeding from a root: such as
    a. : of or growing from the root of a plant
    b. : growing from the base of a stem, from a rootlike stem, or from a stem that does not rise above the ground
2.: of or relating to the origin: FUNDAMENTAL
3. : very different from the usual or traditional: EXTREME
    a.: favoring extreme changes in existing views, habits, conditions, or institutions
    b.: associated with political views, practices, and policies of extreme change
4. *slang* : EXCELLENT, COOL
(Webster 2023)

Underground

adjective
un·der·ground [*n-d r- grau nd*]

1. : being, growing, operating, or situated below the surface of the ground
2. : conducted by secret means
3. : existing outside the establishment
    a. an underground literary reputation
4.: produced or published outside the establishment especially by the avant-garde
    a. underground movies
    b. underground newspapers
5. : of or relating to the avant-garde underground
    a. an underground moviemaker
    b. an underground theatre
(Webster 2023)

Figure 16. University of Illinois, Chicago. 5th. Yr. Design Studio | Maddox, Feldman, Garofalo - The Patriarch House, R.D.Šmits, 1990



Introduction

"What would be the ideal education to prepare anyone to produce in today's society: Fake news, the rise of influences, the waning of the Western culture, a kind of unprecedented amalgamation of anything goes / nothing works?" (Abloh, 2022:18)

Rem Koolhaas | After Architecture

Since the turbulent constructivist revolution, the emergence of the 'old' Bauhaus school in the 1920s and 1930s and the radical pedagogical innovations of the 1960s and 70s pursuant to another 50 years, we may now expect the discipline of architecture to be on the verge of a new wave. What course will architecture take in the wake of the post-digital, and now AI? There seems to be a resonance today with the topics of the 1970s: new technologies, civil protests, the environment, the oil / natural gas crisis and energy conservation. Past experimentation shows evidence that disruptions in academia and practice were essential to foster creativity and the emergence of new ideas in architecture.

During the 1980s, I studied architecture at the University of Illinois, Chicago (UIC). Stanley Tigerman, a pronounced postmodernist protagonist with a fervent mission to seek an architecture of relevance and urgency, was the director of the School of Architecture at the time. Tigerman's ambition and intrusive ego led the school on a new trajectory, radically different from previous programme directors. He sought relevance and meaning, encouraged conceptual work and experimentation, and upheld relevant discourse through various media: drawing, painting, writing, publications, film and exhibitions.

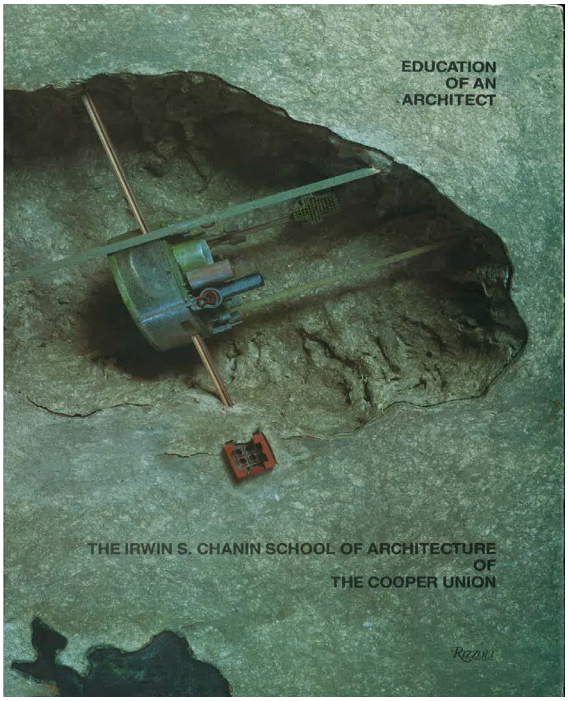
Students were overtaken by the energy and opportunity to study architecture in an environment as explosive as the UIC. Tigerman invited leading practitioners, academics, theorists and critics such as Peter Eisenman, Robert Somol,

Figure 1. Stranded Sears Tower: Model by Greg Lynn, 1992 (available: https://www.artic.edu/artworks/218446/stranded-sears-tower-model, viewed 01.12.2023)

Jeff Kipnis, Roberta Feldman, Katherin Ingram, Ben Nicholson, Greg Lynn (Figure 1) and Doug Garofalo among others to lead design studios and critiques, encouraging innovation and pushing conceptual boundaries. In the 80s, it was the emerging criticality rather than projective design that steered architectural discourse. Students were infected by ideas developed by Rem Koolhaas, Steven Holl, Zaha Hadid, Thom Mayne and architects-educators, one of whom was John Hejduk. The emergence of research-led practices and their published works flooded academic institutions. John Hejduk's *Education of an Architect* (1988) was my personal source of inspiration, where I discovered architecture's poetic capacity to communicate beyond its visual form and tapped into the vast realm of spatial experimentation (Figure 2). We took every opportunity to participate in graduate studio critiques and wandered the master's student design studios to glean 'table crumbs' from graduate jury discourse. The studio became our second home, equipped with every essential amenity to survive the 'storm'. We began to grasp that architecture's essence

functions and affects us beyond its pragmatic and technical requirements.
The digital and the virtual were not actual, yet. There were no *HTML* protocols permitting *http://www* entries and no internet access to 'google' our favourite architects – their websites, research papers or digital archives – yet this didn't stop our creative surge. Research, experimentation, current innovations, the 'social contract' and, in a way, speculation promoted the path to discovery and sustained architecture relevance.
Beatriz Colomina, historian and founder of the Modernity and Media PhD programme at Princeton, has extensively researched mid-20th-century practice, media and pedagogy. She investigated the significance of media types in promoting architectural ideas and how publications and exhibitions of experimental and never-built work were essential in the development of architecture and its discourse. Colomina's *Radical Pedagogies* (2022) documents projects, exhibitions and publications that upended the traditional approach to practice, learning and pedagogy. Her collaborative exhibit *Clip, Stamp, Fold* (2010) recounts various exhibitions, publications and interviews, such as Peter Cook's Archigram's (Figure 3, 4), the audacious speculative *Plug-in City, Computer City* and others; Reyner Banham's article *Zoom Wave Hits Architecture* (1966); Steven Holl's *Pamphlet Architecture* series (Figure 5); Robert Venturi and Denise Scott Brown's *Learning from Las Vegas* and *Learning from Levittown*; and over a hundred documented events, architect and student experiments and published ideas that joined this ad hoc collaboration. This collection of works is a testament to ruthless architectural experimentation and demonstrates the need to speculate to maintain architectural advancement and relevance (KTH Arkitekturskolan, 2015).
In a recent *live talk* on design education, Beatriz Colomina stressed the importance of 'disruptions' and spaces for creativity to flourish. Colomina explains that "disruption can never be the norm; otherwise, it's not a disruption" (Dezeen Magazine, 2021). If the gaps become status quo, they will not have the desired effect. Teaching design or architecture is not controllable or predictable. Disruption cannot be institutionalized; otherwise, it stifles the intended function or moment of creative output. Virgil Abloh, an architect and fashion designer manoeuvring between disciplines, in his *Personal Design Language*, advocates a type of disruptive methodology, breaking convention to inspire creativity: the "zig-zag approach finds new space..." and "... linear thinking results in copies of past projects". To provide space for adaptation, creativity and inventiveness, it is mandatory to avoid repetition or copying the past (Harvard GSD, 2017).

Figure 2. Education of An Architect book cover - The Irwin S. Chanin School of Architecture of The Cooper Union by John Hejduk (New York : Rizzoli, 1988)



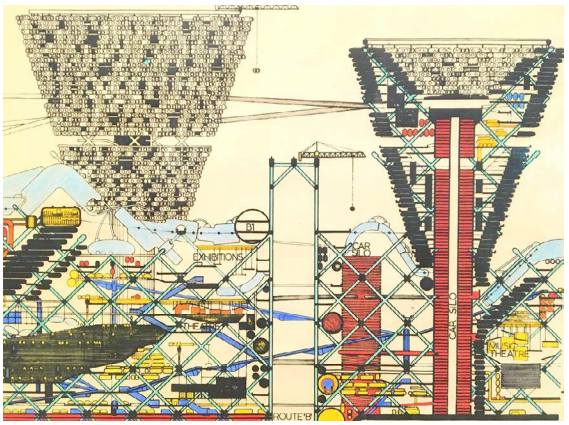


Figure 3. Archigram - The “Plug-in City” by Peter Cook, 1961-74 (Available: https://www.flickr.com/photos/wyliepoon/49224543288)

Figure 4 Archigram. “Amazing Archigram 4. / “Zoom Issue”, 1964 (available: https://arquitecturaviva.com/books/oppositions, iewed 01.12.2023)

The creative idea happens in the gaps, while the teacher and the student are apart in mediated space, between the imagined thing and reality, between praxis, research and academia. The dichotomy between creative vision and practicality coexists to preserve architecture. It is essential to survey the past, that former present, investigating the creative intrusions on accepted tradition or fashion that today can inform practitioners, learning, pedagogy and our speculative future.

Schools of thought
After Bauhaus and the American influence

After the political, social and moral failures of World War II, architects were reluctant to adapt or submit to a singular ideology. Architects were hesitant to accept the modernist manifesto, which swept away history and ignored historical precedent. However, modernist notions of continuous space, the common link between Mies van der Rohe, Le Corbusier and Frank Lloyd Wright, were seriously upheld, appreciated and analyzed. The New York Five vigorously indulged themselves in the work of Le Corbusier. The post-modernist response to modernists and the emerging avant-garde radically changed architectural practice and pedagogy.

There were two primary post-war education models in America: *the École des Beaux-Arts* (the French model) and *the American Academy*. Just prior to WWII, Walter Gropius and Mies van der Rohe emigrated to America. Gropius began to lead the Harvard Graduate School of Design and assimilated a version of the Bauhaus school, which within 10 years time surpassed the American Academy, while Mies van der Rohe went to Chicago to lead the architecture programme at the Armour Institute of Technology, which later became the Illinois Institute of Technology, also known as the IIT (Caragonne, 1995).

The Bauhaus school was reactionary to *the École des Beaux-Arts* with its passion for objectivity, pragmatism and social science and with a special

affinity for 19th-century utopianism and 18th-century Rousseau doctrine. The other track was homegrown American vernacular, a blend of regionalism and pragmatism. The American Academy was concerned about scholarship, draftsmanship, and mental discipline maintained under conditions of pressure. Unfortunately, the modernist aesthetic was appropriated by developers as the new office building type, the new corporate style, devoid of modernist principles and spatial ideas, which left American architecture yearning for more (Caragonne, 1995).

Texas Rangers

The Texas Rangers were a short-lived 'underground' phenomenon that transformed architectural education in America and elsewhere in the world.
Harwell H. Harris, Dean at the School of Architecture of the University of Texas, Austin, hired a group of emerging young architects from various backgrounds. The avant-garde team became known as the Texas Rangers and was led by Colin Rowe, Bernhard Hoesli, John Hejduk, Robert Slutzky, Werner Seligmann, Lee Hirsche and others (Figure 6).
Rowe and Hoesli together with Hejduk and Slutzky developed a new programme to counter already established approaches to architectural education. The Texas Rangers were interested in providing an alternate approach by focusing on spatial ideas, Cubism and Gestalt psychology as the predominant American regionalism, pragmatism and the general reserved attitude towards European ideas produced an architecture devoid of intellectual vigour and meaning. The Texas underground upheld the Bauhaus and spatial ideas manifested in the work of Mies van der Rohe, Le Corbusier and Frank Lloyd Wright. America's own F. L. Wright was slightly neglected, though his spatial ideas were ingenious and applauded by European counterparts. Robert Slutzky, a painter and architectural theorist who also joined the Rangers,

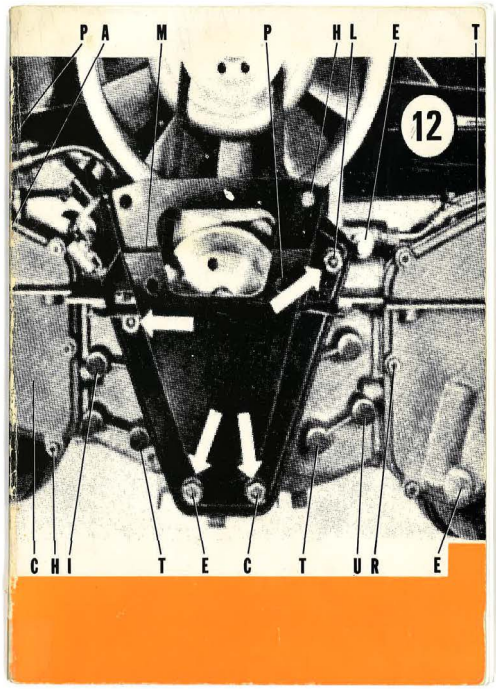


Figure 5. Pamphlet Architecture No. 12, Building, Machines (Princeton: Princeton Architectural press, 1997)

was taught by Bauhaus master Josef Albers at Yale University. Ignoring these key modernist figures was like ignoring the invention of electricity or the combustion engine. This new alternate academy set forth to critique contemporary pedagogy. The Rangers' 'underground' position was symbolized by two unrivalled images / diagrams: Le Corbusier's 'Maison Domino' column and suspended slab (Figure 7) and Theo van Doesburg's (De Stijl) Space-Time (Figure 8) construction drawings (Caragonne, 1995).
The state of architectural education was inadequate and focused mainly on technology (reminiscent of current trends) and educational moralism, stressing originality, self-expression

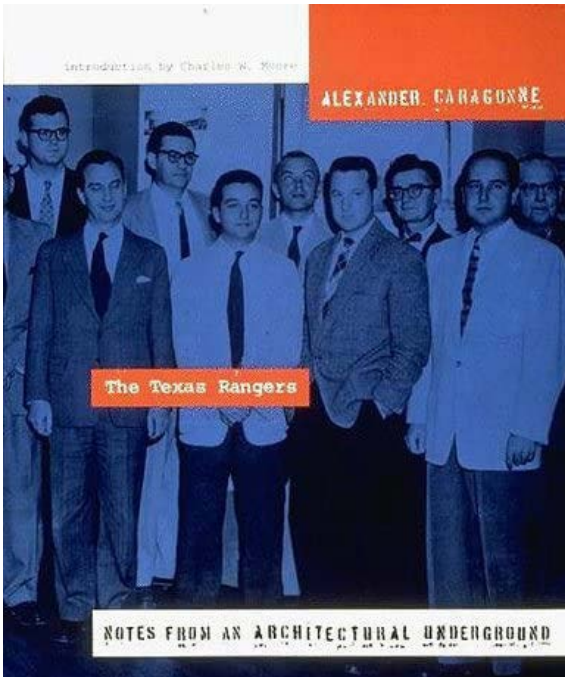


Figure 6. The Texas Rangers: Notes from the Architectural Underground by A. Caragone (Boston: MIT Press, 1995)

bound to tradition, self-gratification, preoccupation with artistic presentation and preparation to enter the profession (Caragonne, 1995). Hoesli and Rowe were convinced that an alternate approach was necessary and possible. In general, architectural education lacked intellectual commitment and was vacant with regard to principles and ideas. The proposed changes were met with resistance from the existing faculty. This short-lived disruption (1954 to 1957) ignited cataclysmic change that spread and affected the course of architectural pedagogy in America and around the world for the next 50 years.

In 1954, Harris assigned Hoesli and Rowe to draft the 'Manual for the Conduct of Design', which described the philosophical basis for a new programme. It was not sufficient to train a student for professional occupation but:

"[...] *above all to stimulate his* [*the student's*] *spiritual and intellectual growth, to develop his intellectual faculties and to enable him to grasp the nature and meaning of architecture*" (*Caragonne, 1995:33-35*).

This manual set forth the policy, goals and methodology for the first academic year. The education programme of a school of architecture cannot be based on the practical and technical aspects of the profession but "only on the intellectual content of the architecture". They stipulated two obligations: first to enable through education the "ability of selection by the exercise of judgement" and, secondly, to "equip the student with skills and knowledge necessary to practice architecture" (Caragonne, 1995:37). The memorandum on the intellectual foundation of the new programme stated that the process of design is essentially a criticism of a given problem for a particular situation, the power of generalization and the use of abstraction function to give insight to assess and breakdown the problem, while the act of selection ('exercise of judgement') assumes a commitment to set principles (game rules). The institution should provide the essential knowledge and posture for approaching and solving the assigned design task (Caragonne, 1995).

Wim van den Bergh explains that the ability to grasp understanding was essential. Knowledge and skills can be taught but it is most important to grasp and gain understanding. The design process was seen as a constant loop rather than a linear 'think, make, test' process leading you close to the final 'product'. The student in such a process gains the ability to turn the initial idea into a concept. The idea is pre-drawing. We unfortunately use the terms 'idea' and 'concept' interchangeably, but they are very different. Idea / *eidos* (Greek) refers only to form, and *concept* (Latin) refers to the thing coming together in the mind making it operable (CIVA, 2020).

In Texas, Hejduk introduced the nine-square grid

Figure 7. ‘Maison Domino’ colomn and suspended slab diagram by Le Corbusier , 1914 (Available: https://www.dezeen.com/2014/03/20/opinon-justin-mcguirk-le-corbusier-symbol-for-era-obsessed-with-customisation/, viewed 01.12.2023)

exercise to students to gain an understanding of architectural space (these ideas were further developed at the Cooper Union). It was not purely about abstract space but already an architectural spatial exercise. The nine-square grid was a box – a kit of parts full of architectural elements that students used to create space: inside, outside and in-between conditions through the use of common architectural elements such as columns, beams, piers, planes and others (Figure 9). The objective was to understand spatial relationships within the context of the nine-square grid. The architect does not use columns and beams for the purpose of holding up a building; that’s engineering. The architect arranges the elements to define space, create order, and direct movement; these are non-structural functions. This ‘game’ of elements allowed students to understand how architectural vocabulary worked in space making, and by adding function they added meaning.

Aleksander Caragonne’s ‘Notes from an Architectural Underground’ indicate that there was no formula for what happened in Texas. As quickly as the phenomenon arose, the disruption vanished. To find the right conditions to capture or repeat what occurred during those years resists apprehension and cannot be simply protocoled or installed. The events and experiences in Austin, Texas, can be compared to a spiritual awakening or religious movement (Caragonne, 1995). Absurdly, Colin Rowe and Hejduk were abruptly dismissed from their positions and scattered to ignite flames elsewhere. Hoesli remained with the faculty for several years to continue the development of the programme but eventually left and returned to Europe to ‘disrupt’ matters in Zurich.

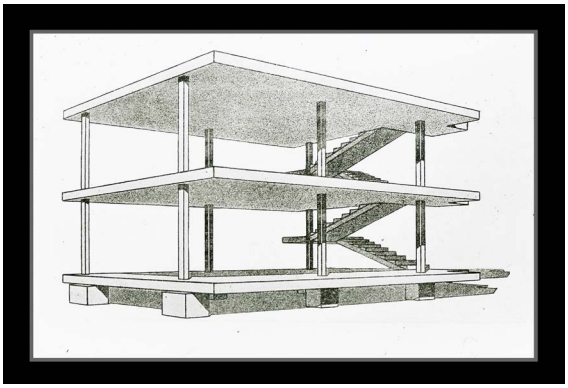
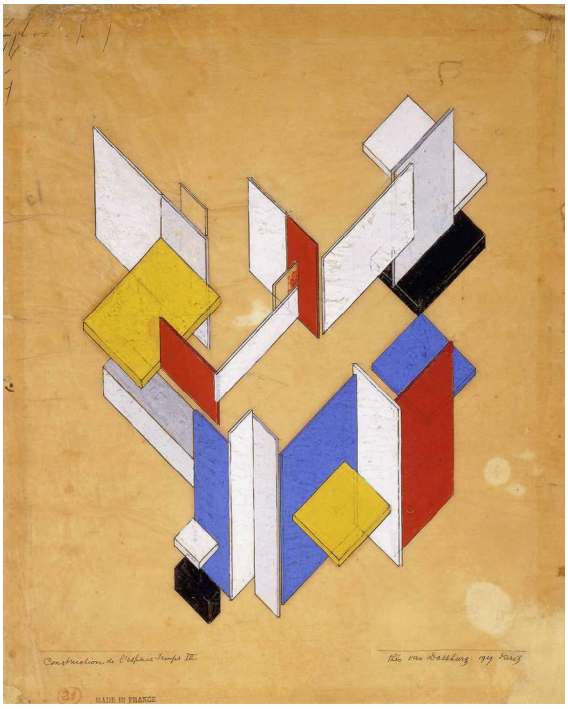


Figure 8. Theo Van Doesburg - The contruction of space-time III (1924) (Available: https://www.artsy.net/artwork/theo-van-doesburg-the-construction-of-space-time-iii , viewed 01.12.2023)



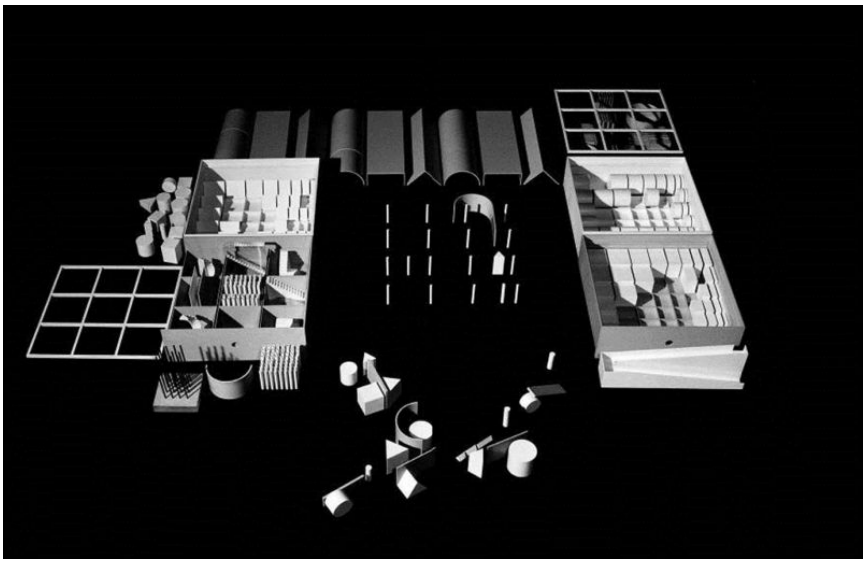


Figure 9. The Education of An Architect - The Nine Square Problem by John Hejduk (New York : Rizzoli, 1988)

Hoesli off to ETH

Bernhard Hoesli returned to Europe after implementing the Architecture programme at the University of Texas. In 1959, Hoesli resettled to Zurich and accepted a position at the School of Architecture within the *Eidgenössische Technische Hochschule Zürich* (ETH), where he taught first-year foundation courses, exposing a generation of European students to the ideas and lessons taught in Austin, Texas. Hoesli focused on the design process; his preoccupation was to 'discover and objectify' the nature of the design process. He divided the process into the 'what' and 'why' of modern architecture and argued that "the main thing was to teach HOW one can design" and discover the essential aspects of architecture and space (Figure 10). Hoesli consummated his earlier modernist spatial framework by articulating a new vision, which was called "The Continuity of Space" (Caragonne, 1995). The pedagogy system he developed became a part of the permanent structure of the ETH curriculum. Hoesli served as the ETH Architecture Department chair from 1968-1972.

Who were the radical and innovative practitioners (**lightning rods**)
The New York Five

Peter Eisenman, Michael Graves, Charles Gwathmey, John Hejduk and Richard Meier were key members and provocateurs of a somewhat bizarre group of New York-based emerging architects – the New York Five – that brought new ideas and investigations to the forefront of architectural innovation in the 1970s. They were also often referred to as "the Whites" for their projects, which, similar to Le Corbusier's, were primarily white (Figure 11). Each architect with their conceptual approach developed projects based on spatial investigation and geometric

Figure 10. Bernard Hoesli collage landscape embedded with architectural form (Available https://openart.ai/discovery/sd-1005708189477646426, Viewed 01.12.2023)

exercises influenced by Le Corbusier, principles of Gestalt psychology and Cubism.

Five Architects: Eisenman, Graves, Gwathmey, Hejduk, Meier (1975), a publication that introduced the movement, includes an extensive introduction by Colin Rowe, who quotes Aldo van Eyck: "What you should try to accomplish is built meaning. So get close to the meaning and build." He also asks: "Is it necessary that architecture should be simply a logical derivative from functional and technological facts; and, indeed, can it ever be this (FORM_AWC, 2016)?"

Members of the New York Five in collaboration with academic institutions had a tremendous impact on architecture education, engaging students in research and experimentation and advancing its discourse. Hejduk, as dean at Cooper Union, continued with spatial experimentation, form, organization, representation and meaning and architecture's literary function. Eisenman's early work was highly theoretical, focusing on geometric exercises and manipulation, and he founded the IAUS in 1967, which served as a platform supporting students' experimentation and advancement of architectural ideas. Architecture's relevance was sought through its intellectual content, which was its primary source of relevance. These practitioners had a reciprocal effect on academics participating on one playing field to advance the discipline through research and experimentation, forging new schools of thought.

Peter Eisenman's transatlantic exchange

It was the moment for something to happen.
— Diana Agrest | IAUS

Figure 12 Institute of Architecture & Urban Studies, fellows, from left front row P. Eisenman, B. Tschumi, D. Agrest 1967-1984 (Availble: https://makingofanavantgarde.com/gallery1 , Viewed 01.12.2023)

The Institute of Architecture and Urban Studies (IAUS, 1967-1984), a New York-based independent think tank, was considered Peter Eisenman's personal project, which provided dynamic inquiries into architectural history and theory as well as contemporary urban issues. The institute attracted scholars, progressive architects and Eisenman's colleagues from Cornell, Princeton and the Cooper Union, for example: Diana Agrest, Bernard Tschumi, Rafael Moneo, Aldo Rossi, Frank Gehry and many others that shaped architecture theory and practice for decades (Figure 11 and Figure 12). IAUS also served as a platform for students to develop conceptual ideas and theories and to test them with real commissions. IAUS organized workshops, seminars, exhibits, and journals and financially supported publications, such as Koolhaas's *Delirious New York* (1978). While the institute was considered a mecca for students, it was also seen as elitist or haute by some for glamorizing architecture. It's best known for its influential publications (Figure 13) *Oppositions and Skyline* (Stott, 2014).

Eisenman's experience at Cambridge University and the Architectural Association London prompted a transatlantic exchange for architectural education, experimentation and discourse. Peter Eisenman, in a TVAA London interview with Alvin

Figure 13. Rem Koolhaas preparing exhibit for Wallace Harrison at Institute of Architecture and Urban Studies N.Y., 1977 (Available: http://www.dorothyalexander.com/Koolhaas%20&%20Harrison.htm, 01.12.2023)

Figure 11. House No. 2 primarily white structure by Peter Eisenman, 1969-70 (Available: https://eisenmanarchitects.com/House-II-1970, Viewed 01.12.2023)

Boyarsky, explained his astonishment with the level of engagement and discourse he experienced in England. In the US, architecture was perceived as a profession, a useful service but not a calling or a mission in life. Eisenman brought the spirit of that UK experience to Princeton's stagnant Beaux-Arts architecture programme, which boasted theory but lacked relevance and reality to sustain it (AA School of Architecture, 2015).
Eisenman envisioned replicating a hybrid version of what was happening in England. He wanted a platform for a qualitative critical discourse and challenged the prevailing empirical attitude found in the United States: architecture as a merely useful commodity and the architect as the one who simply carried out those services. Eisenman realized that you can't fabricate or export the passion found at Cambridge or the AA by importing Englishmen but that's exactly what he did. The British invasion included Kenneth Frampton, James Gowan, Tony Vidler and Tony Eardley. These multidirectional influences generated between the United States and the United Kingdom advanced architectural design thinking and its mode of discourse (AA School of Architecture, 2015).

Conclusion: speculative futures

Europe's New Bauhaus has suspiciously adorned architecture with a new set of criteria. The Davos statement focuses primarily on qualitative and quantifiable performance requirements, which target technology, building economies and society. Only several of the eight accepted *Baukultur* components characterize architecture from these otherwise pragmatic or empirical qualities: context, sense of place and beauty.
Surprisingly, Davos does not mention intellectual content, particularly the realization of an architectural idea as a measurable sign of quality. Historically, architectural education has understood and preserved the importance of both technique and theory. Technique, which emerges from practical knowledge, and theory – the ability to demonstrate and explain why. (Perez-Gomez, 2008) Regulators and bureaucrats seemingly have muted architecture's capacity to speak of its content outside the stipulated performance requirements.

Today, architectural practice, learning and pedagogy are influenced and guided by constant and unpredictable disruptions witnessed throughout the second half of the 20th century. We must hedge the current and future direction of architecture, watering the roots vital to praxis, learning and pedagogy by maintaining research and experimentation (inviting the unexpected accident) to ensure architecture's intellectual content and participation in cultural production and idea building.

"Architecture is not simply something physical but a much more complex culture, whose projects are forms of thought that interpret the world: I think that the architect of the future should begin with the idea that the energies that transform the city and the territory are not only building activities, but also the powers of imagination and pure research. What has been thought exists" (KTH Arkitekturskolan, 2010).

–Andrea Branzi

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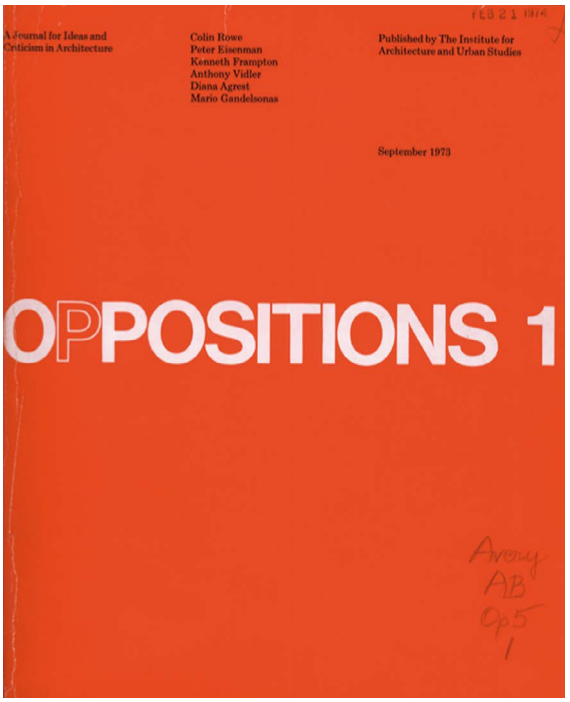

Figure 14. Cover of Oppositions No. 1, by Kenneth Framption, Peter Eisenman, Anthony Vidler, Colin Rowe, Marion Gandelsonas, Diana Agrest, 1973 (Available: https://arquitecturaviva.com/books/oppositions, Viewed 01.12.2023)

Figure 15. The Opposition forum on Aldo Rossi, photograph by Dorothy Alexander, 1976 (Available: https://worldarchitecture.org/architecture-news/ceczc/the-making-of-an-avant-garde--the-institute-for-architecture-and-urban-studies-1967-1984.html, Viewed 01.12.2023)

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Efe Duyan

Rethinking Semiotics in Architecture: ARCHITECTURE AS A PERCEIVED SIGN

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Abstract

The emphasis on the meaning of architecture according to semiotics has been prominent since ecology and social concerns became essential issues in architecture. The article revisits semiotics in architecture in light of recent neuroscientific research on perception, as an inhabitant can only read space through perception, which historically has been reserved for theories related to phenomenology and experience. Following a historical account of semiotics in architecture in the 20th century along with its impact on architectural thought and shortcomings, Umberto Eco's semiotics of architecture in its connection to Hjelmslev's linguistics has been elaborated to describe the potentials of an architectural sign model providing meaning and critical notions through its physical presence and existing cultural codes. In conclusion, an integrated version of the Hjelmslev-Eco model of architectural sign and multimodal perception theories is proposed to meet architectural semiotics' initial theoretical promise of reaching out to society by reaching individual experience.

Keywords

semiotics, language, communication, design, meaning in architecture, experience, perception, neuroscience, Umberto Eco

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Introduction

Ecological thinking, green economic needs, and social inclusivity reflexes have recently brought the architectural artifact's ideological aspects into the spotlight in a refreshing way concerning the context and human experience as essential. Perception has been one of the vital issues for decades as the interface of the building and the experience of using it. The current focus on design processes and the life cycle of buildings brings the process perception of spaces by inhabitants to the forefront as the condition of the emotional states the spaces generate and the message they deliver. Thanks to new neuroscientific discoveries and psychological research, we have contemporary models of perception which are much more interrelated with cognitive practices than we thought. Thus, we can link this to possible critical and ideological interpretations of the world. Architecture has been charged with technically excelling in ecological and economic aspects and going beyond to fulfil its various social missions. Architecture circles more than welcome perspectives integrating its purposes with form-making on an ideological basis and ensuring its perception so that, surpassing technical accomplishments, it transmits its drive. Recently, Loeckx and Heynen mentioned in their book *Conditioning Architectural Theory: 1960-1990* (2020) that this atmosphere might be the right time to rethink semiotics in architecture, as it has focused on communication between the designer and end-user since general criticism of modernism emerged. Roland Barthes conceived of the urban environment as a sign; Umberto Eco, among others, emphasized the communicative aspect of architecture; and Derrida's deconstruction rigorously inspired a generation of architects until the technical abstractions of linguistics fell from grace around the turn of the millennium.

Semiotics and visual signs

At the beginning of the 20th century, the development of a general "theory of signs" was announced almost simultaneously by the Swiss linguist Ferdinand de Saussure (1857-1913) and the American philosopher and scientist Charles Sanders Peirce (1839-1914). In continental Europe, Saussure's ideas matured slowly within language studies and, from there, permeated other fields as an analysis of underlying systems of relations to constitute structuralism, which is characterized by the Linguistic Turn – a term popularized by Richard Rorty's 1967 anthology by the same name. The argument that "the problems of philosophy are problems of language" (Rorty, 1992, 371) emphasized that 20th-century thought has been closely associated with language. As Ludwig Wittgenstein elaborated in his well-known *Tractatus* (1921), "Whereof one cannot speak, thereof one must be silent"; language has been more than an object of philosophical inquiry; it has been an inspiration and model for thought. *The Linguistic Turn* parallels the prominence of logic around the same time and bears some vague yet crucial resemblance to philosophies emphasizing the human mind's inner workings, especially phenomenology. While semiotics and phenomenology have significantly differed in apparatus, namely structure versus interpretation, thinkers such as Paul Ricoeur built intermediate perspectives. The connection point can be that both focus on the media we encounter the world through, language and perception, as a form giver to our understanding of it – an idea that can be traced back to Kant.

Saussure's semiology, elaborated in his *Courses in General Linguistics* – a book summarizing his lectures from 1906 to 1911 – conceives of the main element of language as a sign, which is set up by two signifying operations that occur simultaneously and activate two forms of relationality: a positive association and a negative differentiation. The sign is the association of "the signifier", which is usually the sound of the word, and "the signified", defined as a concept that does not necessarily refer to "something" out there in the world. The association between them is arbitrary, as famously remarked. Saussure, however, understood language as a system held together by structural differentiation, which is connected to the sign's position within the overall system. In short, the sign acquires meaning in the simultaneous play of association and difference (Loeckx & Heynen, 33), creating a random connection between the form – acoustic or textual word – and the mental content.

From the late fifties onwards, the widespread success of structuralism, informed by Saussurean ideas, generated a spectacular resurrection of semiotics, not just in linguistics but also in social sciences and arts, which suddenly began to see their own object of study as structured just like languages (Loeckx & Heynen, 32). Roland Barthes corroborated Saussure's earlier statement that all domains of culture, science, and society, in fact, could be considered as various forms of language and that hence his linguistics, in the long run, might become just another part of a more general science of semiology that would deal with all kinds of languages. His 1957 collection Mythologies, in particular, opened a pathway toward a semiology of nonverbal languages. The book deals with various topics, such as the Tour de France, publicity posters, and even avant-garde car designs, considering all of them as languages.

Architecture as language

Seeing architecture as a kind of language is not entirely new. The tradition of classical architecture tends to conceive of architecture as an autonomous visual framework determined by a set of rules, as discussed by Tzonis and Lefaivre in their 1986 book, *The Poetics of Classical Order.* After the 19th century, several modernist architects and theorists turned against the classical conception of architecture as a language that opted for

symbolic representation instead of functionalism (Loeckx & Heynen, 33). In the aftermath of World War II, international modernism, marked by rectangular prisms developed from early avant-garde tendencies, might have become the de facto insignia of corporate identity despite refusing any representational attachment until the early postmodern implications. Still, during the legitimacy crisis of then widespread rationalist architecture, seeing architecture as a communication medium was considered to be a general way out, embodied by Charles Jencks's question "What is architecture about?" in 1980. One of the crucial postmodern arguments has been that architecture should be meaningful and able to interact with the community. How language or language-like systems, in this case, architecture and design, generate contact was the starting point of semiotics.

Fittingly, Saussure explained his linguistic concepts of syntagmatic stringing and paradigmatic selecting using an architectural metaphor, implying architectural semiotics as a possibility. He described how a column is "syntagmatically" connected with other parts of the construction, whereas the column itself is selected from a paradigmatic series of Doric, Ionic, or Corinthian versions, as underlined by Loeckx and Heynen (34).

Efforts in combining semiotics and architecture have also resulted in several crossovers. Charles Morris, the author of *Foundations of the Theory of Signs* (1938), which would resonate within architectural circles, in line with American semiotics, was closely connected with Bauhaus follow-up education programmes in Chicago and Ulm integrating different fields of knowledge (Mallgrave & Goodman, 38). Joseph Rykwert and Charles Jencks, among others, devoted significant efforts to the problematics of meaning in architecture in the late 60s and 70s while building the foundations for the future collaboration of Derrida with Eisenmann and Tschumi in a post-structuralist context. These endeavours mark the first half of the 1970s as the climax of semiotic interest among architects, but at the same time, the lack of success in applying it in any compelling way. The technical abstractions of linguistics soon pushed semiotics out of practice. As ironically put by Mallgrave and Goodman (39) in their history of architecture theory of the previous decades, "when the last Derridean converted to Deleuzianism in the early 1990s", semiotics in architectural theory had all but "burned in its conceptual excesses". There have already been a few decades of disinterest in architectural semiotics and the meaning of forms. Seen from a new perspective, is its potential to reinforce critical thinking in design worthy of consideration again?

Semiotics scholars have addressed the essential question of how a form, a visual sign, generates meaning. Charles Morris divided semantic signs into three groups of indices, icons, and symbols, pointing out the correlation between form and meaning, given that it is not arbitrary as in language. Indexical signs point to their meaning, icons exhibit properties of the content to which they refer, and symbols, by contrast, are culturally established signs. Roland Barthes elaborated on the various orders of signification, adopting the theories of one of the influential linguists from Copenhagen, Louis Hjelmslev, to explain how far-fetched references work. The first order of signification is that of denotation, a direct signification, while connotation is a second order of signification that uses the denotative sign (signifier and signified) as its signifier and attaches an additional signified to it. Namely, the connotation is a sign which derives from the signifier of a denotative sign. The mythological effects of visual signs result from the interplay between denotation (a straightforward, literal meaning based on a simple and direct relation between a clear signifier and an obvious signified) and connotation (a more layered and implicit meaning beyond the literal one). According to Hjelmslev, this reciprocity allows for the insertion of ideologies in the language of sport, publicity, or

design because the apparently innocent denotation functions as a vehicle for ideologically charged connotations.

Eco' s denotation and connotation

It was Umberto Eco, though, who urged for downright architectural semiotics following Barthes's cue. He proposed a model for architectural signs as a way of communication in his 1968 book The Absent Structure, translated into English a few years later in 1973 making a formidable impact, complemented by his article *A Componential Analysis of the Architectural Sign / Column/* soon afterward. According to Eco, if all cultural phenomena were systems of signs, any function must be related to communication. All architectural artifacts serve a communicative function by fundamentally communicating their function to be fulfilled before their actual use. For example, a cave promotes the act of taking shelter and signifies the existence of the possible functions in a given cultural context, just as a stair promotes the possibility of going up as a condition to be used by someone. He states that the form of stairs denotes the meaning of stair as a possibility of going up based on a code that one can work out and recognize as operative "even if no one might be going up that stair at present and even though, in theory, no one might ever go up it again" (1973, 60). An object of use is, in its communicative capacity, a sign of a denoted meaning, which is its function. The first meaning of a building is what one must do to inhabit it, as the architectural object denotes a form of inhabitation. The architectural form should make the function possible and, at the same time, communicate that function, making the function "obvious, necessary, and attractive" (1973, 59).

In the Anglo-Saxon tradition based on Peirce's philosophy of pragmatism, a sign has three components: signifier, signified, and referent – an object that the signified concept refers to in the real world (Atkin, 2023). Eco differs slightly from the Saussurean tradition by also defining the signifier as a physical object of use. Eco prefers the term sign-vehicle as a combination of the object and the signifier. This manoeuvre helps him describe the sign-vehicle as a physical space with specific functions to fulfil and communicate as a linguistic signifier. While the simultaneously used and perceived object is the signifier, the communicated function becomes the signified meaning. In this case, the term function is used in two senses. Firstly, the function of space refers to its practical use. Secondly, the function of communication denotes the information on how to inhabit that space.

The communicative function, however, has a twofold mechanism; it does not consist of only denoting practical use. Eco emphasizes, just like Barthes, the line between a direct signification of a meaning and an indirect, usually symbolic one: denotation versus connotation. While architectural signifiers denote precise functions, these strictly functional meanings (Eco refers to "the primary functions") of these signifiers can be extended, with successive meanings ("secondary functions") obtained via connotations. In addition to denoting going up and down, a majestic staircase can connotate power and prestige in the context of specific cultural codes. A cave, for instance, in his hypothetical model of the beginning of architecture, came to denote a shelter function, but, in time, it has begun to connote family, security, or familiar surroundings. If the seat is a throne, it must do more than seat one, he remarks, as "it serves to seat one with a certain dignity, perhaps through various accessory signs connoting regalness" (1973, 65).

Furthermore, Eco asks if its connotative nature, this symbolic function of the object, is less functional than the primary communicative function. While the denotation of practical use seems to be the sole functional content, symbolic meanings also have essential utility functions in architecture which get ahead of practical uses in some cases. The connotative or symbolic meanings

represent a real social utility of the object. So, the communicative function of the sign vehicle should be extended to all possible uses of utility objects as, in societies, the symbolic capacities of these objects are no less helpful than their utility capacities while shaping them according to their ideological purposes. Rather than a stark distinction, they constitute an interrelated twofold mechanism. To some degree, the primary function denotes its practical use symbolically, as the possible use is communicated through the form and needs to be learned instead of being necessarily intrinsic. Likewise, connotative functions only imply a symbolic meaning derived from practical use, as Hjelmslev and Barthes explained. The two types of information on how to use a space and what that space symbolizes work in tandem.

Eco does not further pursue the interaction between the information about use and symbol reference. Nevertheless, between being the user's handbook and abstract notions, the spectrum of signified meaning hosts various ideological variations directly linked to use. Each primary function is bent by some ideological connotation about how it should be performed in each case. No seat is only a seat which promotes the simple possibility of seating; in any given context, it refers to distinct versions of seating – in a class, in a job interview, with a loved one, in court, or in leisure time. An ideological connotation seems to be inescapable. Just as symbolic meanings are derived from primary functions, symbolic connotations, in turn, forge the function. Their interaction creates ideological subdivisions in any functional category and evokes further aspects regarding the political dynamics of a space. Representation of space as a concept and our experience of it pave the way for the production of space, as Henri Lefevre elaborated in a not-so-dissimilar discourse given the overlappings between post-structuralism and post-Marxism as mainstream critical tendencies. Eco, on the other hand, turns his attention to the artistic possibilities of architecture through semiotics. He explains how society needs cultural codes generated step by step in order to communicate. Anything publicly emerging enters the realm of codes and entangles itself with connotations, tracing itself and its own historical representation in collective memory. Even non-representational functionalism journeyed from embodying an overambitious dynamism of modern daily life to impersonal power relations and monotonous urban presence. Without the existing cultural codes and their tendency to extend themselves, incorporating any public visual object that appears in the public realm, utility functions, let alone symbols, would be unreadable. These codes are not as fixed as in language but are a system of "rhetorical formulas and already produced message-solutions" (1973, 78). The architectural message becomes expected and comprehensible only by resting on these codes. Eco notes that architecture, at times, just like arts, has moved in the direction of innovation, going against existing rhetorical and ideological expectations in history but not departing from given codes entirely, which makes architecture an artistic act but also draws the line between them. In a surprisingly – or not surprisingly – Adornesque output, he claims that breaking the existing codes is the artistic freedom of architecture. In other words, since all communication is ideologically loaded as each denotation incorporates connotation to a certain extent, seemingly purely functional objects can effortlessly and necessarily be redefined as signifiers that are always also symbolic. Based on a contextual ideological framework, critical engagement with codes is the stepstone for innovation. Nonetheless, each new architectural object revises the cultural codes and seems to be a confession of what design constantly does.

Perception of the architectural sign

Exclusively through formal appearance, Eco's architectural sign-vehicle acts as a signifier; in other words, the three-dimensional form

in semiotics assumes the task of being read and interpreted. At the outset, it is a carrier of functional affordance and a guideline to a particular way of using a spatial environment. The logical end of the connotative signification spectrum is where a form acts as a symbol with almost no apparent connection to how a space is utilized. The denotation of the function might remain so unrelated that the form itself, independent of its use, and thus independent of being an architectural sign, can connote formal notions. For instance, a swastika shape would have connotations overwriting all the functions behind them, given its political or cultural loads. Nevertheless, this is still reading and interpreting them on the background of codes. Semiotics might have allowed us to include the architectural function in aesthetic judgment as it is communicated through the symbolic aspects derived from the function, but the question of the formal impact of the form remains. Might the form, as perceived by the inhabitant, have an additional impact independent of the signified function it hosts? Can the form have a direct aesthetic effect preceding its connotative aesthetic message? Evolutionary psychology suggests that the organizational properties of senses facilitate our sensitivity of perception, which, as explained by Thomas Albright in his article *Neuroscience for Architecture* (2015), might evoke certain mental conditions or even emotions. For instance, Wölfflin's gravity theory or Gombrich's sense of order look for an intrinsic biological mechanism for aesthetic judgment. In any case, all physical surroundings are subject to embodied perception independent of whether they are an object of use carrying various symbolic notions or not. A dose of recent neuropsychological research inspiration seems only fair as visual semiotics solely works through the media of perception rooted in the awareness of surroundings, the body's physicality, and internal networks of the neurosystem.

Eco himself hints at the physicality of space that surrounds us. His real-life referent as sign-vehicle makes it possible to generate the primary meaning, while the cultural codes give context to any sign relative to the observer. Furthermore, he states that the abstract space itself is not the meaning; instead, it is established by several components related to each other (216) with reference to, once again, Hjelmslev emphasizing that no sign exists by itself in isolation. Louis Hjelmslev, born in 1899, has given a new rigor to the notion of connotation and influenced Barthes and Eco in certain aspects. His sign model includes the possibility of codes and materiality inherently, not as external extensions.

Hjelmslev (1961 [1948]) famously renamed signifier and signified, respectively, as expression plane and content plane. According to him, signifier and signified present another innate duality as form and substance. The substance is the physical materiality of the signifier, which takes a particular form on each occasion. On the side of signified, the potential of meaning itself or the possibility of all meaning constitutes the substance, whereas, for each sign, the meaning also takes a particular form, an articulation that differentiates a single meaning from all other possible meanings, just like a word is defined through its difference from other words. In other words, signifier and signified need a realm of existence where the difference from all other possibilities articulates them.

Eco, in his article *A Componential Analysis of the Architectural Sign /Column/* (1972), transposed this linguistic distinction into architecture. Each architectural object has material substance and a particular form that makes it unique and thus identifiable. Each function belongs to the realm of human inhabitation and has a particular form of inhabiting. The form manifests itself in materiality, and a particular function manifests itself in the capability of acting.

Toward a perception of space through semiotics

The advantage of adopting Hjelmslev-Eco's line in architecture is that the terminals of the sign

– the materiality, formal composition, proposed life, and arrangement of functions – are part of the awareness of any inhabitation of space, thus constituting the experience of it. The functional arrangements manifest themselves through the proposed life by design, yet they are also perceivable. The formal composition manifests itself through materiality, yet it is also perceived. Physical surroundings communicate their aesthetics as cognitive symbolism as secondary signified contents, and the perception process includes the recognition of visual data as a sign, thus, as an object of use, but – and it is a crucial but – it is also recognized as pure form. In this regard, the stimulus of space includes the perception of the form as form by itself, too.

As recent neuroscientific research has shown, perception is a multimodal process, as Sarah Robinson and Juhani Pallasmaa elaborates in the essential anthology *Mind in Architecture* in 2012, summarizing recent research and interpreting it in connection to architecture. As widely popularized by neuromarketing studies, certain decisions (such as the so-called reflex of an athlete) are taken before they appear on a conscious level. Emotion psychologist Lisa Feldman Barrett demonstrates in *How Emotions Are Made* (2017) that emotions, decisions, and first reactions partially occur or start to emerge before the conscious processing of the raw data is finalized. In other words, we feel an emotion before we know that we feel that exact emotion. Our consciousness is gathering data from the immediate environment and processing it together with senses at all times, and if we consider semiotics, it takes a period to recognize an object of use as a sign and read it. We react, or our visual cortex and somatosensory network initiate a reaction to the spatial form around us first, and only then do we cognitively read the form as a sign. The perception process can apply patterns to the raw data and, thus, is an active and constructive process dominated by evolutionary reactions and coaction by personal memory.

Our brains are not compartmentalized, but various regions work multifunctionally to bring about the so-called primary senses of seeing, hearing, touching, tasting, and smelling; it can be added that we have the sense of balance, gravity, temperature, pain, and other internal control mechanisms. Thanks to various neurophysiologically intertwined neural mechanisms, they work together with memory, imagination, and mental abilities. Perception is defined not only by the unique plasticity of a human brain but also by a person's past experiences, as memory and cognitive abilities are highly embodied. These notions (and facts) present an endless and creative interpretation of space, if not random, as Paul Ricoeur framed the art piece as a structural sign which opens up in readers' minds.

In this regard, we can define four aspects of experienced space that have interrelated yet individual impacts and thus design considerations: the perception of the form itself; symbolic associations of the form related to personal or collective memory, i.e., cultural codes; the evaluation of the function itself based on the practical inhabitation; and connotative, ideological associations based on function.

The form in itself presents the sensual perception of the purely material surroundings, and according to evolutionary aesthetics and as explained by Thomas D. Albright (2012), certain formal sensations trigger mental states based on our biology. The association world of the form offers to connotate a series of symbolic meanings and emotional states with the involvement of memory and regarding collective memory, such as a non-convex polygon, can hardly be conceived with the presence of the iconic representation of a star or how non-linear geometries trigger uncanny emotionality as described by Wigley in his manifesto of deconstructivism.

The perception of the signified function in itself results from reading and sensing the visual surroundings. This involves a cognitive mapping of the functional arrangement (as Eco describes denotative communication) and also bodily

movement as part of sensation. The association world of the function corresponds to what the functional program connotates in comparison to another similar place culturally, ideologically, and symbolically.

In semiotics terminology, perception constructively impacts reading a sign. Architecture is a text but an embodied and perceived text. More technically speaking, the form creates another sign, the signified being a formal potential effect, unconsciously "read" according to the inner workings of biology first, and still might have distinct connotations for cultural codes – as a visual sign, not necessarily as an object of use in this case. The individual messages of the form in itself and function in itself combined with unlimited possibilities of connotations emerge in and constitute the experience.

Understanding architecture semiotically has presented theoretical instruments for design to communicate with society, yet considering only perception processes, architecture as a perceived sign can reach individual experience to bring any social mission to a full circle. As the Cartesian division of body and mind collapses, our brains' neural connectivity allows us to unravel the architectural stimulus in connection with semiotics. In *T.S. Eliot's words* (1920), the spatial object can be the objective correlative of a desired critical experience to generate a channel between the designer and inhabitants in an age where ecological and social sensibilities are expected to be incorporated beyond technical excellence.

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Anna Saurova

Abandoned airfield revitalisation - placemaking based on the principles of nature

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Abstract

During the last century, the landscape of Latvia has been strongly affected by the era of industrialization, which has left behind remnants of the former industrial boom: abandoned and ruined factories, hangars, railway sections and other structural elements, including mighty horizontal structures in the form of abandoned or unused military and agricultural airfields, which degrade both urban and rural landscapes.
This study is based on three basic aspects: landscape as a part of the quality of human life, waste landscape as an inevitable aspect of the human cultural landscape, and placemaking as a philosophy and a process of place transformation. Humanity is an integral part of nature, and the two constantly interact with and influencing each other in both positive and negative ways. Through the study of the needs of nature and people, a solution is sought for a harmonious and equal coexistence of both participants.
In response to the question of whether it is possible to create a new place with a new functional and sociocultural purpose by recycling and reusing existing degraded landscape structures, the author provides spatial design guidelines for the creation of a community village of aviation enthusiasts on the territory of the former military airfield in Vaiņode.
In the course of the research, it is revealed that by applying a special development strategy and using elements of cultural-historical landscape identity and placemaking principles, it is possible to give the territory a new identity, revive it by attracting people, and create a sustainable and self-sufficient community village of flying enthusiasts.

Keywords

landscape, wastescape, drosscape, placemaking, airfield

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Introduction

Remnants of the legacy of the industrial boom can be found today, in varying degrees, both in the urban environment and in the rural landscape. One form of this heritage is abandoned or disused (defunct) airfields. These buildings are also closely related to natural pollution, so they especially attract the attention of various specialists and professionals, including landscape architects and urban planners, who see potential in the development of such areas. In Latvia alone, there are dozens of abandoned and/or unused runways and airfields that "haunt" the middle of meadows. This study draws attention to the fact that humanity is an integral part of nature, and the two constantly interact with and affect each other in both positive and negative ways, for example, creating a landscape of waste, polluting the environment, and contributing to the threat to biodiversity and the ecosystem as a whole. However, there are opportunities for humanity to improve the situation in a smart way by cleaning up the environment, restoring the diversity of nature, and creating a useful, harmonious and healthy environment. This opportunity is sought by determining what elements identify the landscape, what challenges must be faced in working with a degraded landscape and whether it is possible to create a new, functional and harmonious environment, partly using and recycling waste landscape elements based on an unused, partly ruined former military airfield.

Landscape as a part of the quality of human life

Landscapes are an essential part of a person's quality of life. Humanity is increasingly thinking about landscapes, their immeasurable value, and wants to enjoy quality landscapes, as evidenced by decisions made by international organisations. For example, in the framework of the European Landscape Convention, the Council of Europe has recognised the cultural, ecological, environmental

and social role of society as an essential part of people's quality of life in urban, rural, degraded and high-value areas. It is committed to greater unity between the Member States to protect this common heritage (The Council of Europe, 2000). According to the definition of the European Landscape Convention, "'landscape' means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (The Council of Europe, 2000). This definition is quite broad and does not provide a deeper understanding of the nature of landscapes. It is necessary to identify the elements that describe a landscape to determine its quality. Each landscape is unique with its special character formed by landforms, type of vegetation, human settlements, etc. By determining the quality of a landscape, it is possible to understand whether it is being improved as a result of human activity or whether it is losing its unique value.

Landscapes are studied in a wide range of disciplines, such as geography, geology, geomorphology, ecology, history, archaeology and landscape architecture. Each of these sciences distinguishes aspects of a landscape. In landscape ecology and natural geography, the concept of landscape is related to human perceptions and sociocultural relations with territories (Simensen, Halvorsen and Erikstad, 2018).

A landscape's nature defines people's self-image and sense of place, which distinguishes one region from another. It is a dynamic background for people's lives. A landscape can be as diverse as agricultural land, a landscape park or a desert. The range of landscapes is extensive, such as icy polar landscapes, mountain landscapes, vast desert landscapes, islands and coastal landscapes, and densely wooded landscapes, including boreal forests and tropical rainforests. The transformation of the visible elements of the earth's surface is called landscaping (Conti et al., 2016).

According to Stobbelaar and Pedroli (2011), landscape identity consists of several aspects:

- places or existential identity
- spatial identity
- personal and cultural identity
- cultural landscape identity

They summarise the different theories and approaches to landscape identity in a diagram, "Landscape identity circle" (Figure 1).

This circle provides an opportunity to identify blind spots in landscape identity projects. Researchers and practitioners can use this system to determine which types of landscape identity will be addressed in their projects. As shown, identity is a multifaceted concept that affects how different stakeholders are taken into account – individual citizens, pressure groups, experts and policymakers – emphasising other parts of the landscape identity circle (Stobbelaar and Pedroli, 2011).

The traditional landscape of Latvia is characterised by flower meadows, narrow country roads, rustling birch groves, winding rivers and streams, rustling forests, and farmsteads. But this beauty is beginning to disappear. Picturesque landscapes are being replaced by angular cuts, straight lines, and overgrown fields. The Latvian landscape is losing its richness of natural diversity, stored in people's memories and paintings by old masters. (Latvijas Dabas fonds, n.d.)

The existence of natural meadows requires close cooperation between man and nature. It takes many years to restore them. One hundred years ago, 30% of Latvia's landscape comprised natural meadows. At present, they constitute only 0.7% and continue to disappear (Sniedze-Kretalova, 2017).

The dominance of natural lines and accents plays a vital role in maintaining the aesthetic quality of a landscape. Landscape conservation can be facilitated by a forest landscape plan, a farmyard plan, the preservation of open views, the display of individual landscape elements, and certain small landscape elements. Overgrazing and dross do not contribute to maintaining the aesthetic quality of a landscape *www.youtube.com.* (2017).

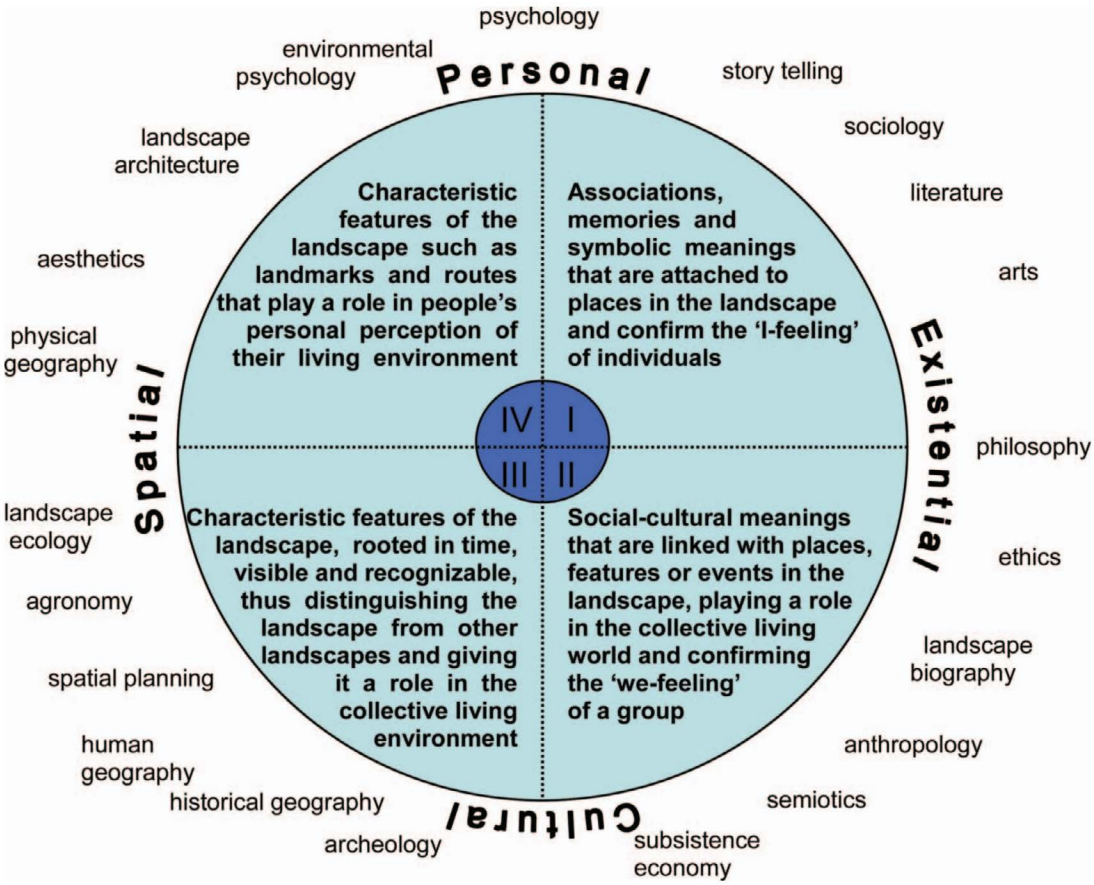


Figure 1. Landscape Identity Circle. [diagram] [diagram / picture / survay / table]
Stobbelaar, D.J. and Pedroli, B. (2011). Perspectives on Landscape Identity: A Conceptual Challenge. Landscape Research, 36(3), pp.321–339.

Drosscape as an inevitable aspect of the human cultural landscape

Cultural landscapes are natural or artificial landscapes recognised as a value to be preserved and need to be monitored. The UNESCO World Heritage Convention (1992) distinguishes between three categories of landscape: deliberately developed landscape, organically grown landscape and associative landscape.
Alan M. Berger, a professor of landscape architecture and urban design at the Massachusetts Institute of Technology, has dedicated his research to a changed and renewed landscape world, where new landscapes are constantly being created and others being destroyed (Berger, 2007).
In his book *Drosscape: Wasting Land in Urban America*, Berger looks at America's ugly, abandoned, and industrially polluted areas.
He forms a link between urbanisation and deindustrialisation and American cities' vast

horizontal waste landscapes. Berger distinguishes three types of waste landscapes: actual waste, wasted places, and wasteful places.
Drosscapes create a new state in which vast, wasted, or wasted lands are modelled according to new programmes or new sets of values that remove or replace real or seemingly wasted aspects of geographic space (vty, 2006).
In essence, a drosscape is neither good nor bad but a natural result of consumer, industrial and economic activity. However, deindustrialisation is in full swing in the developed world, and the proliferation of toxic waste and wasteful lands is taking place. A waste landscape indicates healthy urban growth (Berger, 2007).
Although Berger's work is specific to the United States, it is just as relevant to the rest of the world. The United States, Germany, and Israel are leaders in drosscape cleanup, but most of the world's environmental control is still in its infancy. Drosscape landscaping of yesterday can be a new cultural landscape today. The Latvian landscape also underwent significant changes with the gaining of independence in 1991, which significantly changed the previous management system and people's habits, as a result of which countless drosscapes have emerged and still exist in both urban and rural areas (VARAM, 2021).
According to Berger, the task of designers is not to fight waste but to create more flexible and aesthetic strategies for its transformation (Shannon, 2006).
Researching and analysing waste landscapes has revealed several challenges in working with the following types of objects:

1) environment (pollution)
2) landscapes (fragmented landscape)
3) management (strict rules that prevent changes in the landscape)
4) social cohesion (unauthorised action, confiscation)
5) economics (lack of funding)
6) individual perceptions (factors that negatively affect life satisfaction)
7) consciousness (common understanding of waste landscapes) (Amenta and van Timmeren, 2019)

Most of the above elements, such as degraded land and water, abandoned buildings, construction debris, etc., can now be found at Vaiņode Airport, indicating a clear waste landscape. The aerodrome is in a waiting phase and will have to overcome several social, economic and environmental difficulties and challenges to revive.
Urban metabolism ideas based on resource flows involved in urban processes can help identify problems related to waste management, which can help identify urban contractions involving building infrastructure, remote areas and the abandonment of contaminated soil. An approach based on metabolism can quickly identify an impending crisis and reveal the fragility of social democratic systems, especially concerning environmental issues, which gives an idea of garbage landscapes (Amenta and van Timmeren, 2019).
Summarising the above, it can be concluded that recycling waste landscapes allows discarded and weak areas to regain their value.
To revitalise and relocate the territory of Vaiņode Airport, which is to be classified as an abandoned and underused area, it must first attract people with common interests. To attract people, this area must be made extraordinary; it must be given new meanings and new functions, and a new place must be created that would be attractive to fans of light aviation, for example. The creation of a multifunctional village for aviator enthusiasts on the territory of the former military airfield in Vainode would largely coincide with the county's vision of a "green", sustainable living environment based on nature and scenic values. It would be a safe living space with a diverse cultural and sports life". (Vaiņodes novada pašvaldība, 2014).

Placemaking as a philosophy and a process of place transformation

Each science has its subject which it studies; for example, astronomy explores outer space, history explores time, and geography explores place. Canadian geographer Edward Relph (Relph, 1976) writes about this in his book *Place and Placelessness.* Relph's research methodology is the phenomenology of place. Phenomenology is the study of human experience, such as situations, events, and meanings, as it fits into everyday life (Relph, 1976).

A place is not a void or an isometric plane or a kind of container that contains space. To gain an experience-based understanding of a place, it must be explored considering what people experience / perceive in it. Without a thorough knowledge of a particular place, it is difficult to describe why it is special and how it can be broken down or restored (Seamon and Sowers, 2008).

The identity of a place is related to meaning, perception, memory and experience. If these elements are lost, then the site itself and its feeling are lost, so the identity of the place or landscape is very closely connected with the creation of the area (Othman, Nishimura and Kubota, 2013).

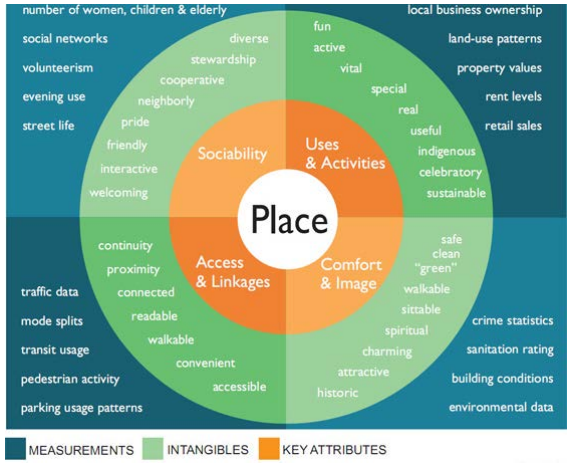
Over four decades ago, the placemaking movement emerged with trailblazers such as Jane Jacobs and William H. Whyte, who introduced revolutionary concepts concerning Americans and their interaction with urban environments. At that time, this perspective didn't have an official label; rather, they demonstrated the importance of creating cities that prioritize people, featuring pedestrian-friendly streets, inviting public areas, and vibrant communities (Project for Public Spaces, 2017).

In the 1990s, the nonprofit organisation Project for Public Spaces (PPS) from New York focused on building communities. PPS began using the term "placemaking" to describe their approach to building communities around a place (Project for Public Spaces, 2017).

As shown in the following diagram (Figure 2), each

Figure 2. Basic principles of placemaking [diagram]. "The Placemaking Process," Project for Public Spaces, 21 Dec. 2017, assets-global.website-files.com/581110f944272e4a11871c01/6063d3b880d64b4d2b36a3d6_Placemaking-process-pps.png. Accessed 12 Feb. 2022.

Figure 3. Conditions that make the great place [diagram] Available at: http://placemakingchicago.com/about/qualities.asp [Accessed 12 Feb. 2022].



Airfields type	WORLD	EU	LV	LT	EE
balloonport	35	6	0	0	0
closed	8546	1224	17	6	12
heliports	16999	1436	5	2	2
large airport	446	118	1	1	1
midium airport	4741	981	5	6	5
seeplane base	1097	29	0	0	1
small airport	37947	5630	50	54	19
	69811	**9424**	**78**	**69**	**40**

Figure 4. Types of aerodromes in the world [map] OurAirports (n.d.). Members in the World @ OurAirports. [online] ourairports.com. Available at: https://ourairports.com/members.html

new space has its basic principles and sequence of actions.
Placemaking encompasses both a philosophy and a tangible approach to revitalizing public spaces. It revolves around the act of closely observing, actively listening to, and engaging with the individuals who inhabit, labor, and recreate in a specific locale. This proactive engagement seeks to comprehend their requirements and hopes for that particular space and the broader community it serves. The placemaking process can either retrofit an existing space or plan a new area. Because every situation is different, the steps are not always the same, nor do they always happen in the same order. The most important part of the spatial planning process is to ensure that the new space's vision meets the community's goals.
Creating a place comprises not just the creation or arrangement of space; it is a process that contributes to creating important public destinations – places where people feel very interested in their communities and are committed to improving things. Local community resources, inspiration and potential are used to create sites, resulting in suitable public spaces that promote human health, happiness and economic well-being.

The conditions that make up a great place are graphically summarized in Figure 3 (Placemaking Chicago, 2008). Regarding the creation a new site in the territory of the former Vaiņode military airfield, this diagram helps us to understand what qualities need to match and with what tools it can be measured. For example, access must be equally good by car and plane and on foot, and there must be good connectivity with the nearest town and surrounding villages so that people living in the pilot village can easily access the services provided by the city, and citizens can use the air services and entertainment offered by the park. Comfort is equally important for the residents and users of the airpark, for example, limiting the noise level by flying only during daylight hours. The social and activity factor is also very important for the airpark to function properly.

Life cycle of large abandoned structures – airfields

Over the last hundred years, thousands of airports and airfields have been built worldwide, significantly affecting the landscape. Due to the rapid development of air traffic and aviation, many airports are functionally obsolete and abandoned due to inappropriate location or size.
Aerodromes are impressive infrastructures that have inspired landscape architects and urban designers from the very beginning of aviation history. They have a significant impact on transforming the urban environment and natural landscapes and are defined as borders, junctions, gates, squares, infrastructures, and social and cultural sites. Aerodromes are very rarely considered landscapes and even less often is the opportunity taken to create a new productive landscape from a functionally obsolete, abandoned aerodrome.
Nevertheless, airfields transcend being mere engineering endeavors and architectural structures; they evolve into intricate urban ecosystems with substantial environmental ramifications.

Figure 5. Airfields in the World, 2017 [map]
Favargiotti, S. (2018). Renewed landscapes: Obsolete airfields as landscape reserves for adaptive reuse. Journal of Landscape Architecture, 13(3), pp.90–100.

Figure 6. Decommissioned Airfields in the World, 2017 [map]
Favargiotti, S. (2018). Renewed landscapes: Obsolete airfields as landscape reserves for adaptive reuse. Journal of Landscape Architecture, 13(3), pp.90–100.

These airfields have already presented designers, municipal authorities, and developers with novel and hitherto unexpected prospects, laying the foundation for the creation of fresh landscapes. (Dumpelmann and Waldheim, 2016).
Globally, more than half of airports have an unknown future or are in danger of closing. There are around 70,000 different types of airports worldwide (public, private, military), of which 8,546 are closed (Figure 4), and most of them are in Europe (Figure 5).
According to the "Our Airports" website (Figure 4), there are currently 9,424 airports in the European Union, of which 1,224 are closed, abandoned or underused. That's almost 10 per cent of all aerodromes. This problem is not widely discussed, only mentioned in some projects in Europe and North America (Figure 6).
Landscape architects worldwide have begun to take an interest in aerodromes as a basis for designing biological or ecological strategies for aerodrome management.
Combining centrality, emptiness, environmental contamination, and economic capability makes airfields exceptional case studies from a landscape perspective (Favargiotti, 2018).

In general, the growing population, the need for new housing, and the central location of airports in cities contribute to their transformation into new urban sites or parks. Transforming a lost aerodrome is a complex but straightforward design process at different levels.
According to the website myairfields.com, created by aviation enthusiasts, Latvia's fields and meadows hide more than 50 abandoned and unused aerodromes for general aviation, military, and agriculture. Many of them harbour historically significant facts, brave and passionate pilots and aircraft designers, and architecturally and culturally substantial values. There were many achievements in Latvian aviation in the interwar period, but most of the vestiges have been lost, destroyed, or closed. However, some of them still could be useful.
The number of unused and abandoned airfields in Latvia is 78 airfields, of which 17 are closed and 50 are small airfields with an undetermined function. (Figure 4).
Functionally obsolete and abandoned airports pose many problems: used land, urban or rural pollution, and economic losses to owners who cannot manage and maintain them.

Figure 7. Latvian landscape from a bird's eye view [photo] Anna Saurova, 2021

Aerodromes form long horizontally stretched structures, changing the natural pattern of the landscape (Figure 7). The changes in the natural landscape caused by abandoned linear objects in the form of runways are shown in the following figure (Figure 8).
According to the *Journal of Landscape Architecture* (Favargiotti, S. (2018)), four aerodrome transformation scenarios can be distinguished:

1) The airport has been completely refurbished and replaced with a specific combination of public parks and housing and a new form of city, such as Stapleton Redevelopment.
2) Airports are being transformed due to natural processes, such as in Frankfurt am Main (Maurice Rose Airfield).
3) The airport has been partially remodelled, while other parts have been left intact, such as in Berlin (Tempelhofer Feld).
4) The airport is on standby until the final deactivation of the airport, for example in Catalonia (Lleida–Alguaire Airport).

Dismantling inactive aerodromes is not considered to be the best solution. Alternative uses are usually found for them. On the one hand, these projects demonstrate that the conversion of obsolete and decommissioned airfields can be an effective lever for urban, social, economic, and environmental redevelopment programmes. On the other, such experiences also highlight the resulting deleterious political, social, and environmental impacts if they are kept, abandoned, and underutilised over time. Therefore, airfields can be considered landscape reserves, owing to their capability to be turned back into the landscape and generate a new productive landscape (Favargiotti, 2018).
Many abandoned aerodromes have performed other functions; many have begun new life cycles, giving new impetus to development in the cities or landscapes in which they operate. The challenge for the airport lies in its size, openness and horizontality, which offer a unique convergence of local characteristics. Figure 9 shows the aerodrome life cycle curve over time compared to the product life cycle curve. Unlike a product, an aerodrome can gain new life through recycling. Converted airfields include environmental sustainability, preserving the local agricultural heritage, restoring endangered habitats and commemorating the aviation history of their former airports.
The redevelopment of an abandoned aerodrome can stimulate local and regional growth processes by introducing new productive ecological and cultural activities. Growth activity involves the accumulation of local resources and values. It can take the form of land management, the creation of new habitats and ecosystems, or the development

Figure 8. Abandoned airfields of Latvia [photo] myairfields.com. (2022). MyAirfields. [online] Available at: https://myairfields.com/# [Accessed 5 Feb. 2022].

of a community where it did not exist before (Favargiotti, Yang and Harvard, 2017).
The conversion of an abandoned aerodrome provides many activities that were not possible before, such as open spaces, educational programmes, and passive and active recreation. However, the preservation and reflection of the site's natural and historical heritage must accompany the introduction of new opportunities. For example, existing hangars can be saved for aviation museums or educational and social spaces. Remaining in virtually every aerodrome site, a hangar can create many new experiences and interactions for site visitors. (Favargiotti, Yang and Harvard, 2017)
Site materials and media can be stored, recycled and reused to create less waste and preserve a local sense of place and history. For example, concrete from a former runway can be reused as an aggregate for new roads or used as landscape features such as benches and sidewalls. It follows that salvaged media must be assessed to determine their condition and level of contamination. When new materials and media are introduced, they must

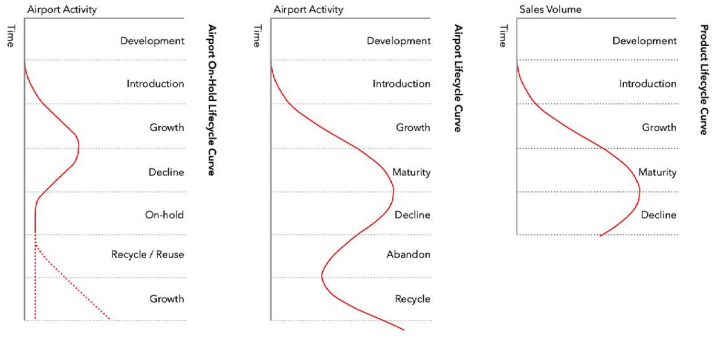
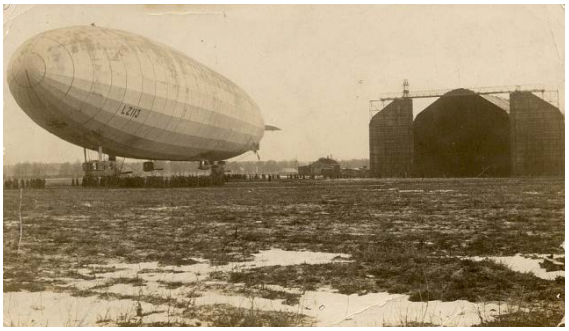


Figure 9. Aerodrome life cycle diagram [diagram] Favargiotti, S. (2018). Renewed landscapes: Obsolete airfields as landscape reserves for adaptive reuse. Journal of Landscape Architecture, 13(3), pp.90–100.

be sustainably designed and waste-neutral to avoid jeopardising the environmental objectives of the conversion project.
One such abandoned airfield in Latvia, the skilful conversion of which would benefit landowners and residents of the neighbourhood as well as the aviation sports and enthusiasts industry in general, is Vaiņode Airport (Figure 10).
Vaiņode airfield has historically been one of the largest military airfields in the Baltic States and is considered one of the cradles of aviation during the independent state of Latvia in the interwar period. The construction of the Vaiņode airfield began 110 years ago for the needs of the German army. In 1916, two 240-metre-long, 37.4-metre-high and 47.2-metre-wide airship (zeppelin) hangars, Walther and Walhalla, were built in the territory of the airport (Figures 11, 12).
These were impressive buildings with a paved highway and rails connected to the Liepāja-Romni railway line.
The airships soon lost their military significance, the hangars were demolished, and their structures were moved to Riga in 1924 to construct the central market pavilion (Nacionālā kultūras mantojuma pārvalde., 2021).

Figure 10. Vaiņodes lidlauks [photo]
Leismalite.lv. (n.d.). Vaiņodes lidlauks – Leišmalīte. [online] Available at: https://leismalite.lv/ vainodes-lidlauks/ [Accessed 26 Feb. 2022].

Figure 11,12. In the photo, German Zeppelin hangars were built during the First World War [photo]
Tomsons, V. and Latvijas Nacionālā bibliotēka (n.d.). http:// www.zudusilatvija.lv/objects/ object/30927/. Zudusī Latvija.



Only the upper parts of the hangars were used for the pavilions of the Riga Central Market; the buildings themselves are made of masonry and reinforced concrete 20.5 metres high and 35 metres wide (Rīgas Centrāltirgus, n.d.).
Now the former airship hangars have become a landmark for both the residents of Riga and the city's guests (Militārais mantojums, 2020).
During Latvia's independent interwar period, Latvijas Aeroklubs was active at Vaiņode Airport. Air glider events took place here – the gliders "Dūja", "Pārsla", and "Zelta vārpa", built in Latvia, took to the air.

In 1940, the airfield was taken over by the Soviet army, and a headquarters was established in the building of Vaiņode manor (Figure 13).
A standardised concrete slab runway was started to the south of the manor. After the Second World War, the Soviet Air Force's 54th Guards Fighter Regiment was stationed in Vaiņode until 1992 (Figure 14). Maintenance, security and various farm units were also located at the Vaiņode base (Militārais mantojums, 2020).
After the restoration of Latvia's independence, the territory of the airfield was left in excellent condition, preserving both the German and Soviet heritage (technical, economic and residential buildings). However, from 1995-1997, the Vaiņode airfield was partially demolished (Nacionālā kultūras mantojuma pārvalde., 2021).
The life cycle diagram of Vaiņode Airport shows that it is currently in an abandoned / standby mode. Still, it has the potential and opportunity to develop, improving the landscape's quality and creating a new space for light aviation enthusiasts (Figure 15).

Figure 13. Vaiņodes muižas pils [photo]
Locs, M. and Latvijas Nacionālā bibliotēka (n.d.). Vaiņodes muižas pils. Zudusī Latvija. Available at: http://www.zudusilatvija.lv/objects/object/14995/.

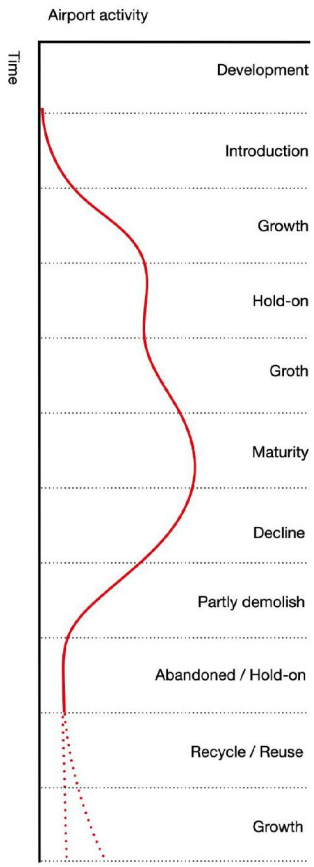
A scenario for the transformation of an abandoned structure on the basis of a former military airfield

To assess the possibility of recovery of the aerodrome, it is necessary to study the area from different angles. As the size of the airfield is quite large (300 ha), initial reconnaissance was carried out from the air by flying around the area and capturing it by photo and video (Figure 16). When conducting an aerial survey, the entire territory is transparent, its structure is understandable, and the consequences of past and present human activities are visible. The same study was conducted on the ground by walking around the aerodrome and its areas and taking photographs from a human point of view (Figure 17).
Surveying a place primarily affects various human senses: sight, hearing, smell, touch, inner feelings. A mapping method was used to understand the diversity of elements, their location, and their impact on the quality of the landscape in the territory of Vaiņode aerodrome. Figure 18 shows the variety of all the elements.
Most of the aerodrome area is covered by construction debris left over from the aerodrome's former buildings. As the buildings were blown up, construction debris was scattered over a large area, making it difficult to use the land. Such elements are considered waste that degrades the landscape and must be disposed of (Figure 19). On the other hand, the surviving hangars are good enough to be reused. In addition, the hangars are covered by a layer of grass, which has historically been used for camouflage so that the hangars are not visible from the air. However, this layer of grass can now be used as a cultural and historical element and can integrate these elements into the landscape by blending them to the maximum.
Different landscape elements give people different experiences, allowing them to identify a particular place. Changing, renewing, or adding an item changes the perception and experience. This creates a new place.
The conceptual idea of the project is based on the

Figure 14. Enlargement - In the northeast, there is an anti-aircraft missile site (circular structure). Source: U.S. Geological Survey [map]
Military Airfield Directory Cold War Airfields (n.d.). Vaiņode Air Base, Latvia. [online] www.mil-airfields.de. Available at: https://www.mil-airfields.de/lv-latvia/vainode-air- base.htm [Accessed 13 Feb. 2022].

dream of flying and living in a hangar. Vaiņode Airport is an area of approximately 300 ha in the SW of Latvia, 4 km from the Lithuanian border and 2 km from the city of Vaiņode. The site is surrounded by forests on three sides. The former military airfield with two 2,500-metre-long and 60-metre-wide runways, technical buildings, and road infrastructure has been partially demolished. There is only one 1,800-metre-long runway left, 16 aircraft hangars, and countless rubble and building ruins throughout the area, thus creating a waste landscape. The theoretical part of this study deals with the possibility of revival of the airfield by replanting the existing elements of the waste landscape, creating a new place, and respecting the details of the natural rural landscape. Therefore, creating a multifunctional airpark that would attract fans of various light aviation sports and recreation is an excellent opportunity to revitalize Vaiņode Airport and unite aviation enthusiasts.
A four-stage development plan was developed for the creation of the pilot village, first creating a public area with a school for flying enthusiasts, then a technical area with workshops, a residential area with hangar houses for passionate pilots and finally a recreation area around the historic Vaiņode manor (Figure 20).
Within the project framework, a pilot village with an area of 17.5 ha is being developed in the NE part of Vaiņode airfield at the location of the historic aircraft hangars. As part of the design, nine hangars are offered, adapted for different types of families to live in and accommodating one light aircraft each. Villagers have direct access to the runway

Figure 15. Vainode airfield life cycle diagram [diagram] Anna Saurova, 2021



from each hangar. This area has a taxiway wide enough to be used as an access road to the hangar homes for both aircraft and cars. All hangars are located by the runway. They have additional access in the form of a path leading to the main entrance. The use of the runway is intended only during daylight hours to not disturb the peace of the villagers and the surrounding area during the night. (Figure 21)

The design concept uses the main identifying elements of Vaiņode airfield: the existing hangar covered with grass for camouflage purposes and the long, wide runway, where the view extends to the horizon. (Figure 22)

The historical reinforced concrete cylindrical hangars are adapted both for living and for parking light aircraft. The main element of the buildings is the arched glazing at both ends of the hangar. The doors of the hangar garages are also made of glass with a mirror effect, reflecting the diversity of the surrounding landscape and providing additional integration of the buildings into nature. Glazing is embedded in the middle of each hangar house, which brings light into the 28-meter-long structures.

The central entrance is located in the middle of the

Figure 16. Vainode airfield from a bird's eye view [photo] Anna Saurova, 2021

Figure 17. Existing structures and ruins [photo] Anna Saurova, 2021

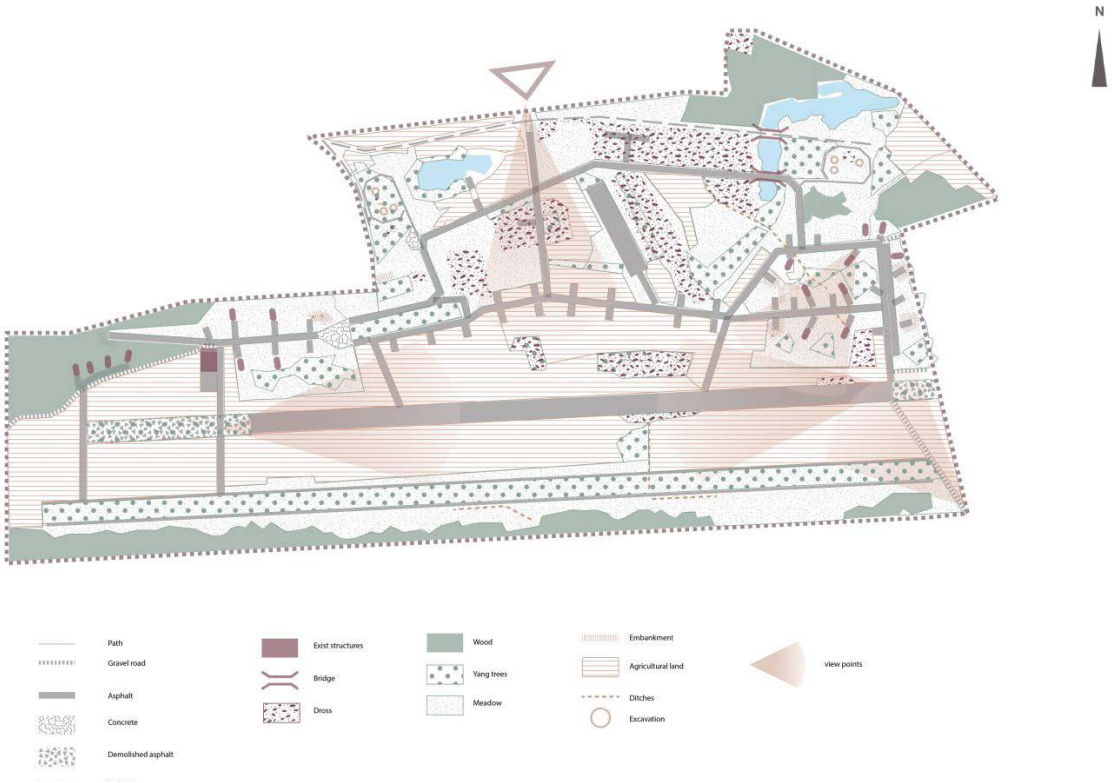
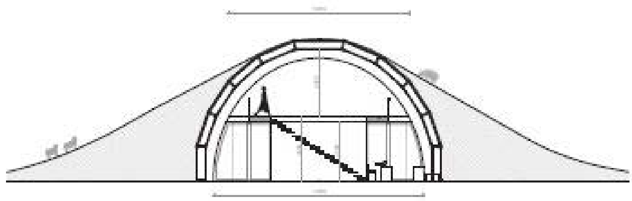


Figure 18. Landscape elements [map]
Anna Saurova, 2021

Figure 21. Hangar home floor plans and sections [drawing]
Anna Saurova, 2021

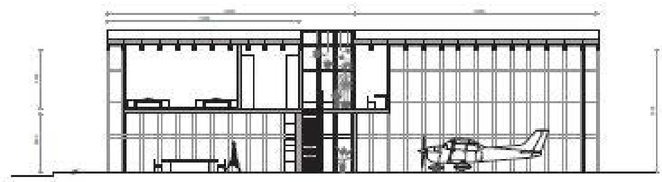
MODULE 1

SECTION 1



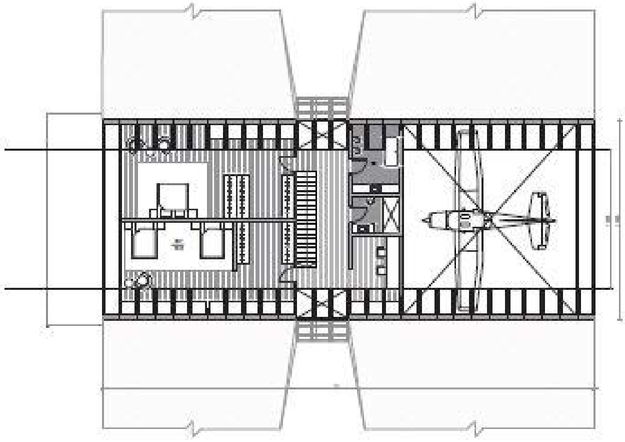
Model scale

SECTION 2



Model scale

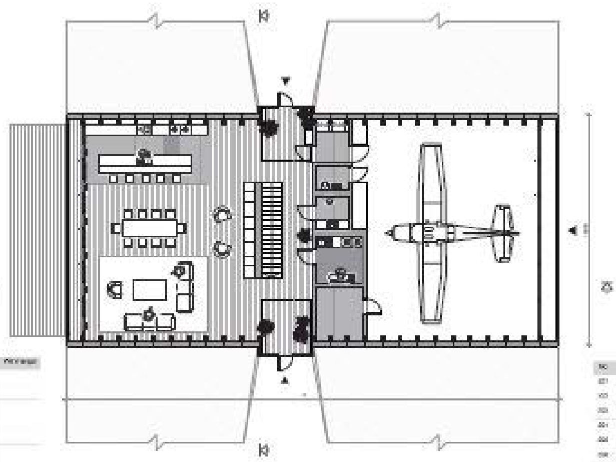
FIRST LEVEL FLOOR PLAN



Model scale

GROUND LEVEL FLOOR PLAN

Model scale 1:10



NO	Room	m²	[illegible]
[illegible]	HALLWAY	[illegible]	
[illegible]	KITCHEN | DINING | LIVING	[illegible]	
[illegible]	WARDROBE	[illegible]	
[illegible]	WC	[illegible]	
[illegible]	WC	[illegible]	
[illegible]	LAUNDRY	7.2	
[illegible]	TECHNICAL ROOM	7.2	
[illegible]	HANGAR	[illegible]	
	TOTAL	[illegible]	[illegible]

NO	Room	m²
[illegible]	HALLWAY	[illegible]
[illegible]	VISITOR'S BEDROOM | WARDROBE	[illegible]
[illegible]	BATHROOM	[illegible]
[illegible]	BATHROOM	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	WARDROBE	[illegible]
[illegible]	BEDROOM	[illegible]
	TOTAL	[illegible]
	GRAND TOTAL	[illegible]

building, from which both the living area and the hangar can be accessed equally well. (Figure 23) The project offers three types of modules for different kinds of families. The living area of each building has access to an outdoor terrace with sweeping views of the runway.

Conclusions

This study aimed to prove the existence of a waste landscape in the Latvian countryside, which consists of abandoned or underused structures for various social, economic and other reasons and adjacent areas, such as dilapidated buildings, barns, factories, etc. The waste landscape in the study framework comprises the former military airfield of Vaiņode, abandoned by the Soviet Army. It is an area of more than 300 ha, where most of the former structures have been demolished and are practically unused, forming a waste landscape.
In the course of the research, it has been found that such objects as airfields have great potential, from the point of view of both landscape architects and urban planners. As there are many abandoned and defunct aerodromes globally, their reuse is being further explored.
Most aerodromes are converted into residential areas with a long linear park instead of a runway. One of the research tasks was to determine the quality of the landscape of the existing Vaiņode aerodrome area and its identifying elements. For this purpose, the territory was mapped. As a result, the region's geography, architecture, and waste were clarified. Summarising historical information, interviews, and data available in the media and information leaflets, the main identifying elements are the hangars, the long and wide runway, and the memories of the zeppelin hangars, the constructions of which now support the pavilions of the Riga Central Market.
Mapping, photo fixation, and a physical survey of the territory helped determine the set of elements to be preserved and dismantled for further implementation of the region's development vision – the creation of the airpark. The study has shown that it is possible to restore a degraded environment by recovering and reusing waste elements, creating a new site, giving it new functions, and preserving the area's cultural heritage.
In many parts of the Vaiņode airport, nature has taken over artificial structures. This must be respected to give people a quality landscape, and architectural design must be done with minimal interference with natural processes.
The study's conclusions show that it is possible to create a place that can function while coexisting and preserving the diversity of nature and the quality of the landscape.
By applying the right development strategy and using the elements of cultural and historical identity and the principles of creating a place, it is possible to give the area a new identity, attract people and create a sustainable and self-sufficient community of aviator enthusiasts in the former military airfield in Vaiņode.

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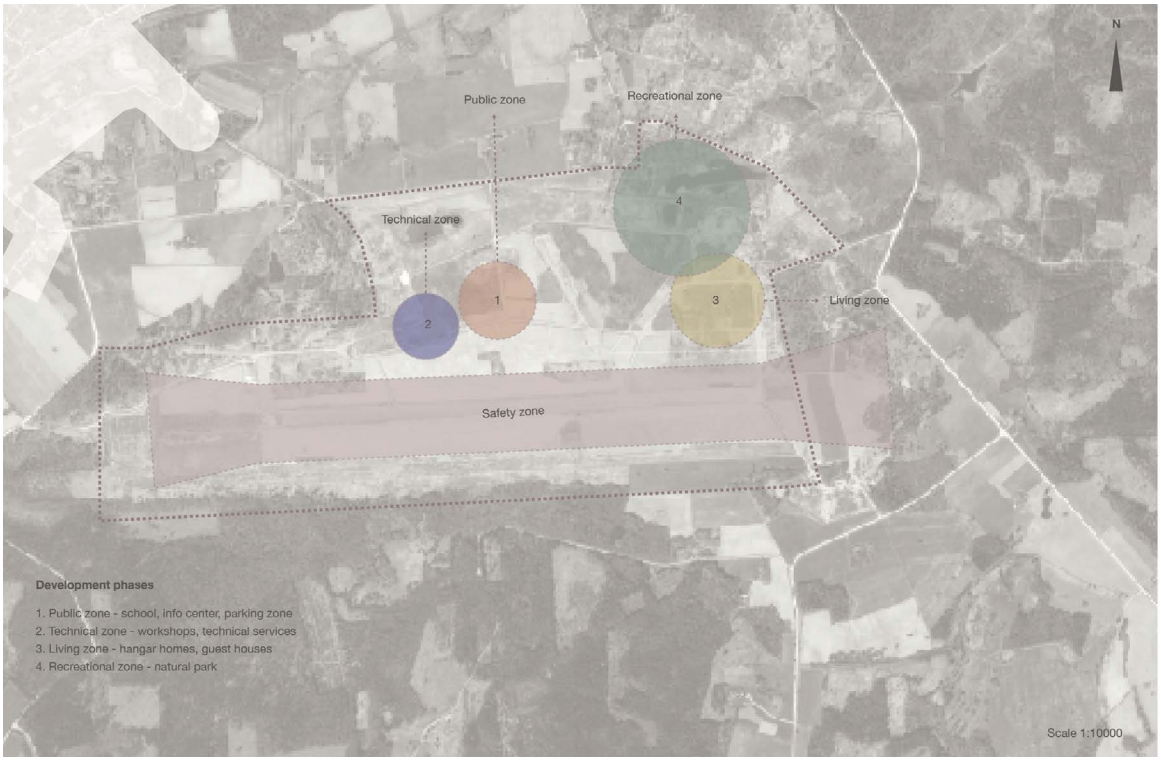

Figure 20. Possible development phases of the airfield [map]
Anna Saurova, 2021


Existing structure (hangar)
Possible place for hangar home
Design border
Embankment
Agricultural land
Meadow
Forest
Bushes
cut grass
Shared plane & car road
Path
0
25
50
75
100

Figure 23. Hangar homes plan [map]
Anna Saurova, 2021

Figure 22. Hangar home visualization [drawing]
Anna Saurova, 2021

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Andrea Contursi

RIXARCH2023 conference white paper

Experimental tiny house settlements in the European context

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Abstract

The increasing quest for affordable housing and the impelling necessity to reduce the consumption of increasingly expensive energy sources has resulted in recent years in the growing interest of the public toward so-called "tiny houses": small residences with minimal floor area to be heated and maintained and highest exploitation of all available inner space.
"Tiny house" is in reality a quite inappropriate and scientifically inaccurate term to describe what should be rather simply called "small house" or "minimal dwelling".
However, given the current great commercial popularity of the term "tiny house", I will keep using this phrase throughout the paper. I will in any case exclude from my discussion the tiny house on wheels (since it is topologically closer to a trailer or a caravan than to a proper house and fits better in temporary camping areas than in a stable settlement), focusing instead on modular and container-like houses.
I will also exclude multi-story housing from my discussion to focus solely on single-family houses with a garden (either as detached houses or as row house groups).
In the European context, the so-called "tiny house" – which is already quite common in countries with large buildable land such as Australia and the USA – has to face the restrictions of densely inhabited urban areas and rigid building regulations, which are normally more suitable for more traditional housing forms.
In this paper, I will illustrate the broader historical development of minimal dwellings and the change of paradigm which has taken place in the last 100 years, concerning both social targets and public reception of the small house.
The content of this paper is based both on theoretical research on texts and paradigmatic examples and on my own direct experience as a planning architect currently involved in an ongoing planning process.

Keywords

housing issues, minimal dwellings, tiny houses, urban ecology, participation and governance, urban planning challenges in the 21st century

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Introduction

What are the basic thoughts from which the idea of the "tiny house" has developed?
First and foremost, a "tiny house" can be seen as the most natural reaction to high construction or energy costs, along the lines of "I need to downsize my house because I cannot afford a bigger one". But a "tiny house" can in some cases be more than a simple response to material constraints. It can also be an expression of a radical philosophy of life in which reduction to the essentials is seen as a means to achieve personal freedom and happiness. The phrase "less should and could be enough" (Aureli, 2013) seems to me to be able to summarize this concept in an appropriate way.
Historically, we can observe great variation in the conception and reception of "tiny houses" (also known as minimal housing), and this reflects changes in the social structure of the population and their evolving expectations for the future.
We can describe the pursuit of minimal housing around 1920 as part of a top-down policy used mainly by social democratic or, more generally, leftist governments and administrations to improve the living standards of the working class. On the other hand, the pursuit of minimal housing around 2020 – nearly a hundred years later – can be defined more as a bottom-up movement led by an impoverished middle class to free themselves from the crushing pressures of consumerism and integrate a commitment to environmental issues into their own lives: In other words, it is about the idea that minimizing the "ecological footprint" of one's home can contribute to the global fight against climate change.

Figure 1. Dickelsbachsiedlung in Duisburg. Areal view (Google Earth 7.3.6, 2023. 51°24'26"N 6°46'09" E. Available at at www.google.com/earth/index.html [ac-cessed 21. Juli 2023])

Figure 2. Dickelsbachsiedlung. View on the inner path which divides the gardens of the housing units (Duisburg, Andrea Contursi, 2020)

The tiny house in the planning culture of the 20th century

The idea of maintaining living comfort while minimizing living space is not new and can hardly be limited to the current "tiny house" movement. Nevertheless, it is a topic that has been addressed by several planners over the past century.
I would like to briefly explain the role that minimal dwellings in general played in the context of modernist urban planning in Europe during the interwar period. In the context of great economic and political instability in some Central European countries (Germany, Austria, Czechoslovakia), this period was characterized by the rise of social democratic or generally left-wing governments and administrations that placed the problem of mass housing at the centre of their official political agenda (with the mostly infamous examples of "Red Vienna" and "New Frankfurt"). In 1918, the German architect Hermann Muthesius wrote a research paper entitled "Kleinhaus und Kleinsiedlung" (Muthesius, 1918). In this book, he summarized the numerous housing experiments that were being conducted throughout Germany at the time, beginning with the projects initiated by the so-called reform movement". Central to these was the idea of pushing for the development of "Kleinhaussiedlungen", working-class housing estates in which each family was given a tiny garden for growing vegetables, which supposedly could ensure a degree of autonomy for large families even in difficult economic times (which were common at the time of the Weimar Republic, with its political and economic instability and recurring inflationary crises). Given that the average family still had many members and individual living standards were much lower than they are today, small row houses with gardens were generally considered a suitable solution for low-income families and were intended to provide a healthy alternative to large apartment blocks (the so-called "Mietkasernen") with their cramped small apartments, courtyards, and lack of green spaces. A consistent feature of these housing complexes was, of course, the standardization of the housing units and all technical components in order to reduce planning and construction costs. For some scholars – especially those with a Marxist background, such as Manfredo Tafuri or his colleague Francesco Dal Co – such housing estates

represent just another way of improving the quality of life of workers only to the extent necessary to further ensure the productivity of the system, and they are therefore seen as an instrument for the recurrent processes of reorganization of the capitalist productive apparatus:
"The dream of a human-minded socialism mystifies its very true nature as a tool conceived in order to stimulate the process of production." (Dal Co, 1971, p. 106) In other words, housing is described by him as an organic part of the assembly line, pursuing of course another goal than really satisfying the expectations of the people for whom this kind of housing was conceived.

A paradigmatic example: The "Dickelsbachsiedlung" in Duisburg

The "small house settlement" was very popular in Central Europe at that time. In addition to the best-known examples (most notably the settlement of Hellerau near Dresden), there are a number of lesser-known examples throughout Germany from the period 1910 to 1940. The Dickelsbach Settlement in Duisburg – planned and realized by some members of the Duisburg City Planning Department (architects Karl Preziger, Hermann Brauhaeuser, Heinrich Baehr) – is one of the most paradigmatic examples of what a "small housing estate" should be. The Dickelsbach estate was built almost in the same years (between 1925 and 1928) as the more famous Kiefhoek estate in Rotterdam by De Stijl architect Jakobus Johannes Oud. Not only is the urban layout of both estates very similar (long rows of houses along a north-south axis with gardens at the back), but the brief was also the same: Both were designed exclusively for large families with at least four children, and all houses had rear gardens where families were allowed to grow vegetables or even raise chickens to ensure some degree of self-sufficiency. The standardized typical floor plans were also very similar (Grunsky, 1975).
What is particularly impressive in both cases is the reduction of sanitary facilities to the bare essentials: since a proper bathroom was considered a luxury for members of the working class, the only sanitary facilities available were limited to a tiny water closet on the landing of the interior staircase. I think this detail captures very well the idea of the extreme reductionist approach that inspired these projects: It fits very well within the framework of the so-called "Existenzminimum" approach. However, the perfectly organized structure of this settlement – which of course included some basic community facilities such as playgrounds, stores, a medical centre, a school, etc. – did not contribute to a more general vision of the city as a whole that took into account, for example, its location in relation to working places.
This lack of organicity and fragmentary character was a common feature of many of the housing developments that emerged as part of the Weimar Republic's housing program. As Italian scholar Manfredo Tafuri writes about Ernst May's projects for "the new Frankfurt": *"The settlement was thus to be an oasis of order, an example of how it is possible for working class organizations to propose an alternative model of urban development, a realized utopia"* (Tafuri, 1976, p. 119).
But he also adds: *"The closed economy of the settlements reflected the fragmentary character of the undertakings that left intact the contradictions of the city, which was not controlled and restructured as a system in relation to the new decentralized position of the productive centers"* (Tafuri, 1976, p. 115).
Are there possible alternatives to this reductionist "Existenzminimum" approach, in which the typical division of bourgeois housing into rooms with specialized functions is simply transformed into a reduced version intended for working-class families, without fundamentally questioning its functional programme?
A project by Swiss architect and later Bauhaus director Hannes Meyer, the "Co-op Room" (or "cooperative room", conceived as an exhibition space as part of an exhibition on cooperative design in Ghent in 1924), can be

Figure 3: Ouds Kiefhoek real estate in Rotterdam. Aerial view (Google Earth 7.3.6, 2023. 51°53'27" N 4°30'47" E. Available at www.google.com/earth/index.html [accessed 21. Juli 2023])

Figure 4. Hannes Meyer´s „Co-oP Zimmer" as it was dis-played at the „first international co-operative exhibition" in Ghent in 1924 (ETH Zürich: gta Archives, 1924)

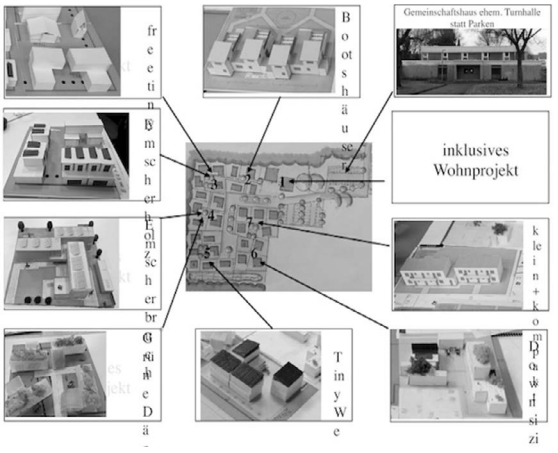
seen paradigmatically as a very radical attempt to redefine the space for modern living in terms other than that of the traditional family home. Italian scholar Pier Vittorio Aureli describes this paradigmatic project as follows: *"Meyer defined the room rather than the flat as the main unit of dwelling, thus avoiding the whole problem of the "Existenzminimum", which was concerned with the minimal dimensions of a family home. Meyer´s project postulates instead a situation in which the space for an individual implies that the collective space is not restricted by any norm"* (Aureli, 2013, p. 15).
In other words, with the "Co-op Room", not only the form but also the traditional functional scheme of the dwelling has been radically revolutionized, in a way which gives priority to collective life rather than to the private sphere of the traditional family.
In both cases, we can conclude that to a large extent (100% in the case of the Central Station embankment and partly in the case of Gustava Zemgala overpass) the land belongs to the state and is transferable to Riga municipality. The preferred scenario would then be for the municipal development department and construction board institutions, in cooperation with residents and the neighbourhood association, to determine the application of the best spatial and social functions for each territory.
A similar process could eventually take place in the switch from traditional single-family house to "tiny house".

Contemporary alternative prototypes for (semi-)urban living

Today, the original concept of small house settlements for large families is outdated, as households have become much smaller on average and many people live single (Statistisches Bundesamt, 2023).
Of course, since the end of World War II, perceptions of basic living needs have changed, which naturally required larger houses. The post-war dream of the German working class was typically the detached single-family house with two floors, a basement, a carport and at least 150 square metres of living space.
But in recent years, the downsizing of average

households in Western Europe and the ever-rising cost of energy, construction and land have made this dream increasingly unaffordable not only for low-income households but also for a large proportion of the middle class.
This situation provides a new positive argument for reviving the idea of the tiny house or "minimal dwelling".
In addition to tiny houses on wheels – which are much better suited to rural areas and less sparsely populated areas with sparse infrastructure – prefabricated modular homes can be considered as a typology that fits better into urban or semi-urban contexts (e.g., peri-urban areas, suburbs, small towns, etc.).
The "tiny house" has gained massive popularity in recent years: In general, they represent a suitable solution for singles, childless couples, or small families in general who want to live in a natural environment but cannot afford or simply do not like a traditional single-family home. The living space is small and varies from about 30 to 65 square metres. The interiors are not differentiated and divided into rooms with specific functions, as in a traditional house or apartment, with all functions – except for sanitary facilities – located in a single room. The garden is a constant element and generally plays a very important role, along with the idea of experiencing nature as an extension of the domestic living space. Often, the willingness to move into a "tiny house" is driven by a desire for a minimalist lifestyle, particularly characterized by a reduction to the essentials combined with a sensitivity to environmental issues. As a rule, this involves heavy prefabrication methods in order to cut costs and times (prefabricated modular houses).
Unlike the reductionism of the 1920s, the contemporary "tiny house" does not pursue the goal of rationalized mass production, but rather an individual dream of freedom and self-reliance: in other words, it is more about the desire to free oneself from certain standards of comfort that were common until a few years ago but are now perceived as superfluous and costly to maintain, forcing people to work more and earn more money in order to afford them.
However, there are some problems to solve: Given the high population density in Central Europe and the scarcity of buildable land, where can suitable sites for individual tiny houses or small house developments be found? And how can they be integrated into existing or planned urban structures without the risk of urban sprawl or chaotic urban development?
While more and more companies have begun to produce modular homes in recent years, they have generally given much less thought to the question of how these homes might fit into the densely populated area of Central Europe.
The most important question to ask, therefore, is this: Can the "tiny house" actually become a valuable alternative in a context generally characterized by strict urban regulations and scarcity of buildable land?

Figure 5. Dortmund-Sölde: The results of the last work-shop with various cluster concepts.
(Dortmund, various workshop participants, 2023)



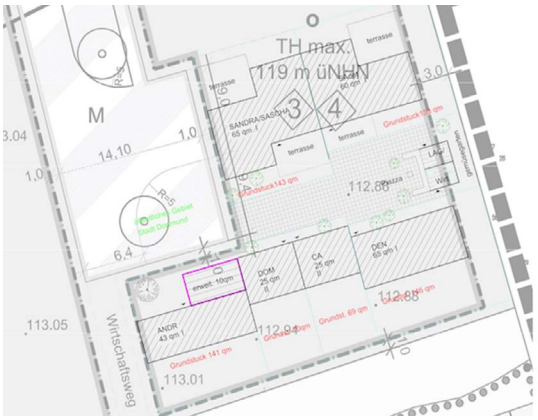
The "Tiny-House-Siedlung" in Dortmund-Sölde: A short report on an ongoing experimental project

The tiny house settlement in Dortmund-Sölde represents the first significant attempt in Germany to build a large-scale neighbourhood consisting entirely of modular "tiny houses". This still ongoing project is also characterized by its participatory approach, through which the settlers – organized in small groups or "clusters" – are directly involved in the planning process. Throughout it each cluster continues to develop its architectural concept independently from the others. The results are then discussed with the city planning department and other groups in regularly scheduled meetings and workshops. Each group has a different idea of what private homes and community spaces should look like. While some groups continue to lean toward individual homes, others are trying to give their clusters a more distinct urban character. I am directly involved in the planning of one of these clusters as an architect and developer: Our group is called "Downsizing", and we are among those who care deeply about urbanity. In fact, we plan to build our houses next to each other and group them around a common central square ("piazza"). In this way, despite the common vision, each house will keep its individuality, related to the personal priorities and ideas of each settler. In addition, certain facilities (laundry room, storage room, technical room) will be shared and located in a common technical house, instead of being assigned to individual housing units.

This approach is not arbitrary, but it arises from the awareness that – given the high cost of buildable land and the limited resources of middle-class settlers in this historical phase – detached houses would cause an unnecessary and – at least for us – unaffordable waste of land. It is interesting to observe how this approach (from the individual towards the collective) has already influenced the development of some other clusters, which

Figure 6. Temporary master plan for the "tiny-house Sied-lung" in Dortmund-Sölde. (Dortmund: Stadtplanungsamt Dortmund, 2022)

Figure 7. Site-plan of the "downsizing" cluster, current stage. (Dueren: Andrea Contursi and studio_MMSD, 2023)



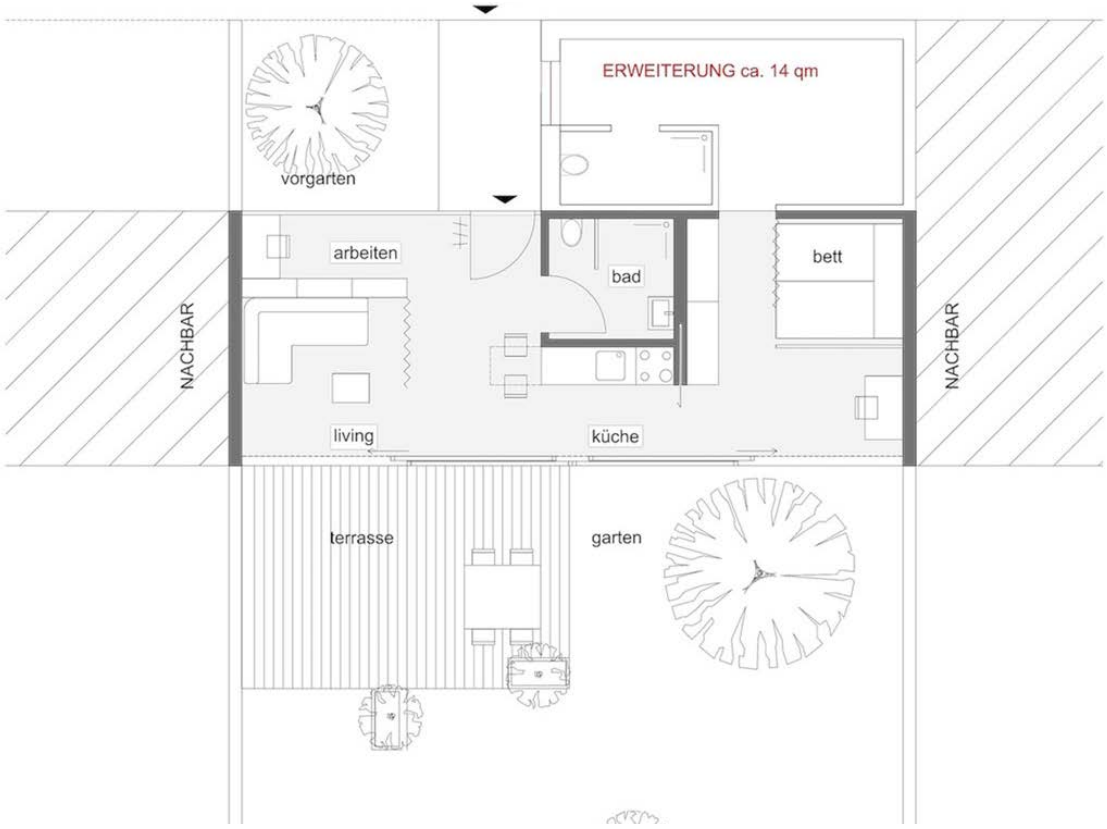


Figure 8. Dortmund-Sölde: Plan of single housing unit, current stage. (Dueren: Andrea Contursi and stu-dio_MMSD,2023)

have already switched from detached houses to agglutinated structures in the mean time.
In any case, this awareness does not yet seem so widely established throughout the "tiny house movement", since the developers of other tiny house settlements currently under development (e.g., in Ulm-Burgrieden in South-West Germany continue to emphasize the idea of individual detached houses. Given that the Dortmund project is still in the making (even the final master plan has not been approved yet), it would be early for a consistent critical reflection on it. We need to look forward to the next steps in order to verify if the switch from single detached houses to agglutinated structures is actually going to be accomplished and if the good intentions (participatory approach, mediation between individual and collective interests, etc.) are really going to materialize into a fine and truly functional urban fragment.

Conclusions

If in the 20th century small house settlements were conceived with the idea – or the illusion – of solving the housing problems of the working class from above, the contemporary tiny house movement can be considered a bottom-up phenomenon, based on the persuasion of their

members to embrace a different attitude towards their private life.
If rightly managed by city administrations and planners, the "tiny house" movement could open new unexplored perspectives for the future of housing in Europe. Unfortunately, the construction of new "tiny houses" remains today in many cases dependent on casual or individual initiative (normally one has to be lucky enough to have available space on their own plot of land). Moreover, current planning regulations – which, for example, in Germany encourage new builders to simply replicate the typological characteristics of the house next door – do not help in this effort, with the consequence that many households simply have to give up the hope of fulfilling their dream of a small house.
Hence, a joint effort of groups of engaged citizens and enlightened planning authorities is required in order to manage this phenomenon and reconfigure it as a valuable alternative to unorganized suburban sprawl. Therefore, it is necessary to set conditions in order to make the construction of dedicated tiny house settlements possible, allowing at the same time the interested parties to actively participate in the planning process. Also, the difficult question of how to connect such settlements physically, functionally and socially with the other parts of the preexisting city should not be underesti-mated.In this way – possibly with the help of a rightly managed participation process and adequate coordination at the level of town and regional planning – the "tiny house" movement could potentially become the incarnation of a new "ascetic" attitude, which would allow people to live according to their real personal needs and with less conditioning by consumerist attitudes. In general terms, precisely the spread of this "ascetic" attitude could help even more people in learning independently their own "limits of growth" and effectively contribute to the fight against climate change and the environmental crisis.
It seems to me quite appropriate to end the article with an interesting quote from Pier Vittorio Aureli's book:

"To say enough means to redefine what we really need in order to live a good life... where less is just enough" (*Aureli, 2014, p. 22*).

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Irem Hafiz

RIXARCH2023 conference white paper

Allegories of the primitive hut[1]

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Abstract

This study proposes both a contemporary critical stance and a historical look back to architectural form generation through the discussion of the origin of architecture. From a post-structuralist perspective to the concept of "origin," the formal expression of architecture that holds representational properties and presents universal validity in search of the beautiful is delved into by using three significant symbolic figures of the hut: the primitive hut by Abbé Marc-Antoine Laugier, the Caribbean hut by Gottfried Semper, and the Dom-ino skeleton by Le Corbusier. Each of the prototypes of the hut illustrates the distinct ideas of a paradigm; verifies its own standards to obtain the beautiful; and constitutes a historical lineage of architectural form generation. Either analogous or conflicting concepts of the tectonic and symbolic qualities of the forms are analysed with regard to the constituents of these iconic models: the three basic members of the primitive hut; the four elements of the Caribbean hut; and the four units of the Dom-ino skeleton.

By following Semper's analytical method of researching, a comparative rereading of hut allegories is suggested in association with Alberti's concept of "building" and the influence of the principles of classical architecture. The main argument of this paper is that the tectonics of form and building, standardized in the form of hut allegories, can be conceptualized in the dialogue between two significant values of form: ontological and representational.

It is suggested that these two dimensions of form should be discussed in parallel with the fundamental distinction between signifier and signified in semiotics, which has been extracted from ancient discussions on the symbolic aspects of architecture. This duality of form determines not only the changing tectonics and new meanings of building but also another sense of beauty and different taste of the time. This paper aims to lay the groundwork for an ontological inquiry into architectural form, the simplest nature of which is supposed to illuminate the intricacy of form production.

Keywords

architectural form, origin, ontology, representation, beauty

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Introduction

Primitive hut allegories, embodying the concept of the origin of architecture, are comprehended as the diverse expressions generating the standards of architectural form, which has been thoroughly explored throughout history. Following John Summerson's analogy between language and architecture, this study seeks to analyse formal expressions and manifestations of building, dependent on beauty and universality, from a semiotic perspective and post-structuralist standpoint, with a focus on models of the hut. Specifically, three prominent concepts of the hut are considered: the primitive hut by Abbé Marc-Antoine Laugier, the Caribbean hut by Gottfried Semper as the counterthesis of Laugier's concept, and the Dom-ino skeleton by Le Corbusier as the more recent "archetypal" example corresponding to the new paradigm in architectural design.

The concepts of these symbolic models not only conflict with each other but also offer a common discussion ground for understanding the nature of architectural form. It is suggested that the nature of form generation is developed between the representational qualities and the technical values of form within this particular research.

The aspiration to find out the essence of architecture by classifying its basic elements and by analysing the factors in the designing and building process has formed the basis of the history of architectural theory since Vitruvius. Each of the prototypes of the hut, illustrating the distinct ideas of a paradigm, presents its own constituent elements that establish the standards: the primitive hut features three basic members – columns, entablature, and pediment; the Caribbean hut comprises four elements – hearth, roof, enclosure,

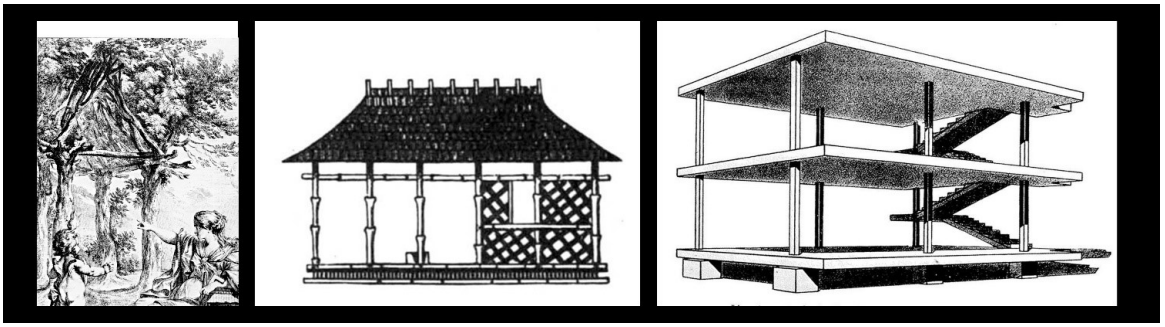


Figure 1. The Primitive Hut; The Caribbean Hut; The Dom-ino Skeleton (Sources from left to right: Charles-Dominique-Joseph Eisen, Frontispiece of Marc-Antoine Laugier's Essai sur l'architecture, 1755; Semper, G., 1860/2004. Style in the Technical and Tectonic Arts; or, Practi-cal Aesthetics. Los Angeles: Getty Publications, p. 666; Le Corbusier, Jeanneret, P., 1964. Œuvre Complète Volume 1, 1910–1929. Zürich: Les Editions d'Architecture, p. 23.)

and mound; and the Dom-ino skeleton consists of four units – slabs, posts, blocks, and stairs. These elements of the models in the illustrations turn into symbols which provide a glimpse into how the process of building and form generation has changed over time. Beyond being a mere critique of architectural theories, following a historical timeline, the objective of this research is to unveil continuities and discontinuities as well as intersections and conflicts among concepts of form building by means of a comparison between huts. A comparative rereading of hut allegories is used as the method of this research by employing Semper's analytical approach, which suggests reducing works of architecture to certain elementary or primitive forms and tracing them from the simplest to their highest expressions (Mallgrave, 1989). Although the architectural expressions introduced by the prototypes present diverse arguments on the "origin" and form generation, this study suggests highlighting their association with the principles of Greek architecture and the Albertian art of building based on the distinction between *matter* and *lineaments*. According to Alberti, building as a form of body is comprised of two aspects of design: matter and lineaments. While the former refers to the physical presence of form through practicing, material selection, application, etc., the latter indicates the abstract dimension or intellectual basis of the design process. This double-sided aspect of building is examined in parallel with the twofold nature of the Caribbean hut: its ontological or technical aspects of architectural form and its representational or symbolic significance. This dual nature of form, which prompts a semiotic exploration of the tectonics of form and its significance through hut allegories, is further elucidated by examining the impact of classical concepts on the generation of novel forms in the subsequent section.

Matter-Lineaments

Vitruvius's treatise, *De architectura* / Ten Books on Architecture, as the only treatise on architecture from antiquity pointing out the distinction between practice and theory, is regarded as the foremost reference source for researching the concept of matter and lineaments of form. Vitruvius (fl. 1st century BC) emphasizes two different subjects for architects, theory and practice, in the first paragraph of the first chapter of his first book. Whereas practice is a regular and repeated physical activity, theory is described as

the ability to explicate (Vitruvius, 1960). Besides practice and theory, Vitruvius also mentions the basic separation between "the thing signified, and that which gives it its significance". These classifications, which are supposed to have semiotic implications, align with the differentiation between building and designing and matter and mind which are used by Leon Battista Alberti (1404-1472). In his treatise *De re aedificatoria* / On the Art of Building, which is similar to Vitruvius's treatise, but different in content and style (De Zurko, 1957), Alberti focuses on the distinction between matter and lineaments similar to the division between significance and signified used by Vitruvius. For Alberti, building as a form of body is comprised of matter and lineaments; the former is "dependent on preparation and selection", and the latter is indicated as "the product of thought, the other of Nature; the one requiring the mind and the power of reason" (Alberti, 1485/1988). In this regard, the building or architectural form is related to the interaction between matter and mind, a concept found in both the ideas of the ancient Roman architect Vitruvius and the Renaissance work of Alberti.

Joseph Rykwert, an architectural historian, critic and one of the translators of Alberti's treatise, asserts that Alberti's two factors – matter and lineaments, which are separated from each other – must be connected by means of a third factor, ornament (Rykwert, 1979). Unlike its contemporary definition as an additive and decorative object instead of a useful one, ornament has another meaning for Alberti. He depicts the column as the foremost ornament of architecture, inasmuch as he does not totally alienate ornament from structure, which can also be ornament, and furthermore, ornament can be connected with the arrangements, the plans and the various elements in use rather than mere decoration (Damisch, 1979). Therefore, ornament is not strictly divided from matter and lineaments, but is in between the two factors as Rykwert claims.

Lineaments of the building with "lines and angles", providing a procedure for the creation of architectural form, bring out a sense of beauty via order according to Alberti's treatise. He believes that "the universal sensation of beauty" is a product of an organic order, thereby accepting Aristotle's teachings and anticipating Kant's quest for beauty which "likens beauty to the expression of the adaptation of the parts to the whole" (Choay, 1979). In this regard, the order of designing, provided by the architect's numbers, rationalizes the building as the Creator ordered the universe against chaos (Rykwert, 1979). Alberti's sense of beauty, which is the result of implementing mathematical rules and using harmonies and proportions of the human body and nature, links his architecture to the sense of beauty in the classical tradition.

In spite of being influenced by classical writings and buildings, Alberti's concepts of architecture and his buildings are not mere imitations of antiquity but reinterpretations of classical architecture. This way of building, defined as "the re-establishment of the grammar of antiquity as a universal discipline", can be seen as a common practice in Renaissance architecture. The elements taken from "the architectural vocabulary of the ancient world", such as the canon of five orders, the way of treating doors, openings, mouldings, etc., are all "standards" of form visible throughout the buildings (Summerson, 1963). Since these standards of the classical language of architecture have their roots in Greek and Roman architecture, the reconstructed language of form, taken out of its original context, is defined as "allusions" in another time and paradigm. However, it is argued that reproduced classical elements as allusions lead to a confusion and collision of time regarding the concept of signifier and signified in the built form because the signifier recalls the previous language of form in the present time while the signified is only related to production in the present moment. The Basilica of Sant'Andrea in Mantua, designed by Alberti, can be given as an example of this reproduction of the grammar of antiquity. In this

instance, the Roman triumphal arch as an allusion, the lineaments of which are the representation of a triumph in the past, was taken and transformed into a church which is used for a different function in the present time (Figure 2). Indeed, a new architectural expression of form comes out of the previous symbolic and representational character of form rebuilt within the present materiality of architecture.

The Primitive Hut: Columns, Entablature, and Pediment

The recreation of the classical language of architecture during the Renaissance, which started in Italy in the early fifteenth century and spread across Europe by the end of the sixteenth century, is the result of the admiration for Rome and unreasoning belief in Roman excellence (Summerson, 1963). In his book, Summerson asks why Rome was the source of all goodness in architecture, and subsequently finds the answers in three points: the unique beauty of Roman architecture, "certain mathematical rules to which all beauty was accountable", and Greek influence on Roman architecture as the most primordial era of human history. In the seventeenth century, this appreciation for the classical language of architecture was replaced by a critical stance which questioned the true nature of the orders and how they should be applied in modern buildings (Summerson, 1963). Instead of strict adherence to traditional standards, a critical spirit came out in France as one of the aspects of Rousseauism, driving the search for new architectural archetypes. At the beginning of the eighteenth century, the Abbé Jean-Louis de Cordemoy (1660-1713), a French architectural theorist, is an important figure as one of the predecessors of modern functionalism who influenced a French Jesuit, Marc-Antoine Laugier (1713-1769) (Kruft, 1994). In the *Nouveau Traité de Toute l'Architecture* / New Treatise on the Whole of Architecture, Cordemoy criticizes the orders so as to release them from their unnatural use and discard the ornamental use of the orders, such as pilasters, half, three-quarter columns, attached columns, ornamental pediments, pedestals, and attic storeys. "His approach is a sort of primitive methodism, stripping away all the elaborate linguistics of

Figure 2. Basilica of Sant'Andrea in Italy by Alberti, 1470-76 (Source for the facade: https///smarthistory.org/alberti-santandrea-in-mantua /; source for the interior: Alinari/Art Re-source, New York, (plan) RIBA, London and University of London, retrieved from https///www.britannica.com/place/SantAndrea-church-Mantua-Italy/media/523146/462)

architecture, all the mystery and drama, all the brilliant play of the Italian masters, and making the orders speak their own original functional language" (Summerson, 1963). Cordemoy's approach represents French thought of the period, which was very rational, yet not applicable, since the orders taken from Rome are highly stylized rather than primitive and functional (Summerson, 1963).

By the mid-eighteenth century, in addition to the reproduction of normative Classical style, Rousseauism, which is related to the Rousseauist school of thought in France, tries to find out rationally justifiable archetypes from which every architectural principle is derived (Kruft, 1994). Therefore, with Rousseauism, there is an attempt to discover models outside of the stylized and canonized Roman language of architecture. Laugier, who is an architectural theorist and a layman, like Cordemoy, is the most important representative of Rousseauism in architectural theory, Kruft states. In *Essai sur l'architecture* / An Essay on Architecture, which takes its basis from Cordemoy's theory, Laugier identifies the true principles of architecture and proposes constant rules with regard to buildings, the ornaments of cities and gardens. The true principles, which Laugier discusses in his book, are founded upon simple nature, according to his statement in his *Essai* (Laugier, 1755). He believes that "essential" beauty, which is deprived of custom and convention, is to be found in nature, where all rules are derived (Kruft, 1994). Laugier's theory is described by Summerson as a breaking point in architectural theory which shifts the basis of architectural thought, consequently building practice inasmuch as he discovers the true principles of architecture in nature defined outside of the existing order.

Laugier develops his primitive hut as a prototype against all "standards" (Figure 3). The theory of the hut "as the origin of all possible forms of architecture" is presented in parallel to the primitive and natural state conceived by Rousseau (Kruft, 1994). Laugier delineates the hut as follows: "A long square, wherein thirty columns support an entablature, and a roof terminated at the two extremities by a pediment, this is all it contained; this collection has such a simplicity and grandeur that strikes every eye" (Laugier, 1755). In place of Roman excellence, Laugier suggests that the primitive model's magnificence arises through nature. As the fundamental principle and measure for all architecture, the primitive hut is a pattern by which the structure of a building is reduced to its basic members: column, entablature, and pediment (Herrmann, 1973). These three elements constitute the structural logic of the hut, which rejects the division between structure and ornament, thereby recognizing the ornament as an integral part of its structural logic. As regards the structural character of the column, Laugier's concept of the order is contrary to the Roman ideal and its re-establishment in Renaissance architecture. Whereas Alberti gives precedence to the wall as a continuous structure over the column, which is defined as a decorative element inferior to the wall as Damisch states, Laugier includes the column as one of the basic elements of the structure and, furthermore, excludes the wall through this statement: "the less (the wall) appears the more beautiful the building will be and when it does not appear at all, that building will be perfect" (Herrmann, 1973). Therefore, Laugier's primitive hut as rationally conceptualised prototype, the essential beauty of which can only be found in nature, introduces form and its significance in one entity. That is to say, rather than the dual characteristics of matter and lineaments that are obvious in the Caribbean hut, ontological and representational characteristics of form merge into each other in the example of Laugier's model.

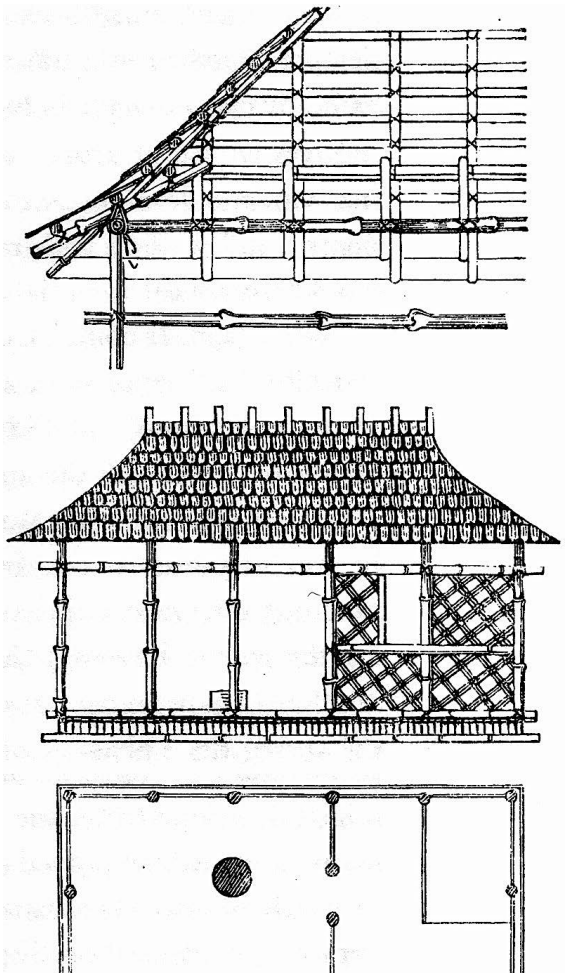
The Caribbean Hut: Hearth, Roof, Enclosure, and Mound

The discussion on the "origin" and the formation of the hut starts with Vitruvius in the first chapter

of his book *The Origin of the Dwelling House*. This narrative text, which summarizes how the first group of human beings was established from the individual by the invention of the dwelling, has a symbolic and allegorical connection with the concept of "the four elements" developed by Gottfried Semper (1803-1879). Semper, the foremost German architectural theorist of the mid-nineteenth century, introduces his primordial dwelling as another representation of the origin of architecture, which is an anthropological counterthesis of Laugier's primitive hut (Frampton, 1995). The four elements which constitute the Caribbean hut – the hearth, the roof / framework, the enclosure, and the mound / earthwork / terrace – are, Kruft states, the "visual reminders of man in his primitive state" (Figure 4); the hearth, for instance, is correlated with "the fire", which the antecedents gather around as mentioned in Vitruvius's text. According to Vitruvius, the first conversation between individuals, social intercourse, and subsequently construction of shelters started via the warm fire discovered by human beings as a result of a natural disaster (Vitruvius, 1960). The hearth, where people assemble, the first alliances form, and religious concepts arise – defined as the sacred centre of the hut by Semper – allegorically represents the story of the emergence of the first human settlement in history.

While the hearth – as Mallgrave notes, "the social and spiritual centerpoint for the dwelling" – is an important moral element of the Caribbean hut or the prototype, the other elements – the roof, the enclosure, and the mound – which are located around the hearth, defend the hearth's flame from the outer world (Semper, 1851/1989). These "elements" of the hut do not refer to material elements or forms; they are conceived as "motives" or "ideas", as technical operations, for example, the idea of roofing, which is related to a tectonic or structural framework (Mallgrave, 1989). However, besides the technical or ontological aspects of architectural form, such as the earthwork, frame, and roof, Semper distinguishes the symbolic or representational nature of the hearth and the infill wall. This distinction between ontological and representational form is drawn concerning the separation between the core of the hut and the skin, illustrating the complex character of building. Furthermore, this dual nature of form

Figure 4. The Caribbean Hut (Source: Semper, G., 1860/2004. Style in the Technical and Tectonic Arts; or, Practical Aesthetics. Los Angeles: Getty Publications, p. 666)



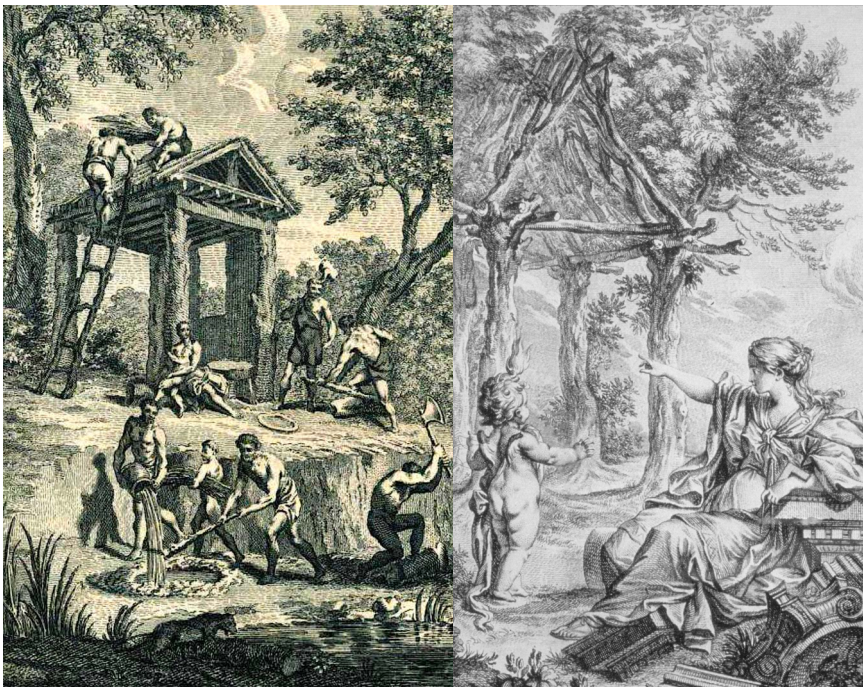


Figure 3. Marc-Antoine Laugier, the Primitive Hut, 1755 (Two engravings as frontispieces in dif-ferent editions of the Essai. Source for the first image: https/// tr.pinterest.com/pin/3302 405851556871 59/?lp=true; Source for the second image: https///www.themorgan.org/ collection/printed-books-and-bindings/278126#overlay-context=collection/printed-books-and-bindings/278126)

can be traced back to the Vitruvian concepts of architecture, rooted in the interplay between the signifier and the signified.

In addition to the division between the technical and the symbolic aspects of construction, the building crafts of the Caribbean hut are also classified into two procedures: the stereotomy of the earthwork and the tectonics of the frame. Stereotomy – from *stereos*, solid, and *tomia*, to cut, in Greek etymology – is related to solid and void of the earthwork, which are formed with stacked heavyweight units, such as load-bearing masonry, while tectonics, from the term *tecton*, meaning carpenter or builder in Greek, refers to lightweight and linear components of the frame which embody a spatial matrix (Frampton, 1995). Kenneth Frampton explains the distinction between heavy and light with respect to material production as "wood construction displaying an affinity for its tensile equivalent in terms of basketwork and textiles, and stonework tending toward its substitution as a compressive material by brickwork or pisé (rammed earth) and later by reinforced concrete".

All of the classifications of the Caribbean hut, whether in a more general or specific sense, arise from the dichotomy between the core and the skin, or the inner and the outer. The enclosure of the hut simply exemplifies this division, with the invisible structure as solid walls representing the core and the visible walls like hanging carpets constituting the skin. Semper defines hanging carpets as "the true walls" of the building which determine the visible boundaries of space; however, the solid walls behind the carpets have no role in the creation of space. This subordination of the core or the solid walls to the skin, which comprises the colourful woven carpets in the creation of space, leads to another significant point in Semper's concepts, "the wall dressing". Hanging carpets, which are replaced by other materials, such as stucco, wood and metal plaques, terra

cotta facings, and alabaster and granite panelling, turn into dressing behind solid and durable walls (Mallgrave, 1989). Consequently, the wall dressing gives rise to its own phenomenon according to Semper's concept. Additionally, the enclosure provides a new insight about the meaning of the wall, which is disregarded in the concept of the primitive hut. There is a double meaning for the wall: the exposed character of the wall dressing and the concealed existence of the solid wall, visible only in its pure form. These dual characteristics of form are exemplified within the enclosed wall system of the Caribbean hut that diverges from the generative system of the Dom-ino skeleton. The latter is presented and analysed in the following section as the mass producible and flexible prototype for housing, representing another paradigm: modern architecture in the Industrial Age.

The Dom-ino Skeleton: Slabs, Posts, Blocks and Stairs

"If we eliminate from our hearts and minds all dead concepts in regard to houses and look at the question from a critical and objective point of view, we shall arrive at the "House Machine," the mass production house, healthy (and morally so too) and beautiful in the same way that the working tools and instruments which accompany our existence are beautiful."

Le Corbusier (1986)

Le Corbusier (Charles Edouard Jeanneret, 1887-1965), who is one of the most significant architects and theorists of the twentieth century, redefines the sense of beauty in architecture by changing the paradigm. The true nature of the orders in the classical language of architecture is replaced by "the standards of mechanical beauty", which are defined as ephemeral. Therefore, there is a temporary nature of the beauty of the machine in the new epoch instead of the permanent principles which are founded upon nature in Laugier's case. This temporariness represents the movement of the industrial era and the mass production concept introduced by Le Corbusier. Inasmuch as Le Corbusier defines this new epoch through "the mass-production spirit" and puts forward "the mass-production house" or "House-Machine", the elements of which are mass-produced by industry, the Dom-ino skeleton is discussed here as the third hut prototype of the lineage, representing the new spirit of the time of the Industrial Revolution (Figure 5).

The Industrial Revolution, which started first in England in the mid-eighteenth century and spread to the rest of Europe, brought about both an increase in industrial production and the mechanization of productive systems (Benevolo, 1985). Moreover, the developments in building techniques, the discovery and implementation of new materials, and the progress in science and engineering during the revolution have led to the transformation of architecture as well, hence the birth of modern architecture. However, there is not an exact time when modern architecture has been born since the mid-eighteenth century. Leonardo Benevolo (1923-2017), an Italian architect and architectural historian, specifies three different starting points for modern architecture: First, modern architecture began when the Industrial Revolution had effects on building and town planning between the end of the eighteenth and the beginning of the nineteenth century, after the Battle of Waterloo. Second, modern architecture emerged with the integration of thought and action which occurred for the first time in England, with Morris. Third, the time immediately before and after the First World War (1914-1918), when the problem of bridging the gap between theory and practice was solved, determined the starting point for modern architecture (Benevolo, 1985).

The Dom-ino concrete housing system of 1914-1915 was produced by Le Corbusier within the period which is included in Benevolo's third depiction of the moments of modern architecture. This period was, Curtis states, when Le Corbusier worked

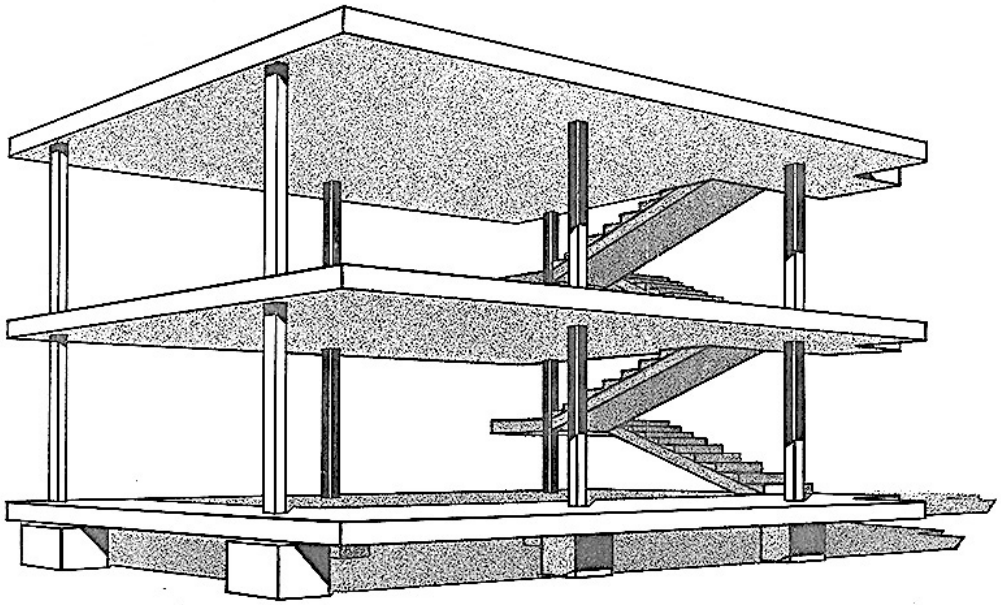


Figure 5. The Dom-ino Skeleton (Source: Le Corbusier, Jeanneret, P., 1964. Œuvre Complète, Volume 1, 1910–1929. Zürich: Les Editions d'Architecture, p. 23.)

in Peter Behrens's office in Berlin, "where he absorbed the idea that a new architecture must rest on the idealization of types and norms designed to serve the needs of modern society, while being in harmony with the means of mass production". Although the Dom-ino skeleton is designed as a mass producible housing kit for the rapid reconstruction of cities after the war, it later turns out to be an image of origins, a genotype, with the basic diagram of structure in pure and ideal forms (Curtis, 1982). The word "Dom-ino" corresponds to both the Latin word domus (house) and the game dominoes, representing the standardization of the houses, the free-standing columns of which are regarded in plan as domino dots and the pattern of which resembles the formations of dominoes (Frampton, 1980).

The Dom-ino prototype as a structural unit consists of three horizontal slabs, square sectional posts of concrete supporting the slabs, squat concrete blocks which lift the lower level from the ground, and concrete stairs connecting the levels (Curtis, 1982). The structural frame of the Dom-ino with the slabs and posts causes the separation between the posts and the walls in place of the uniform enclosure of the Caribbean hut, which constitutes the whole system of the walls with the structural core and the skin as dressing. Since the slabs extend beyond the lines of the posts as the cantilever and the frame of the Dom-ino does not have to be filled with the walls as an enclosure, the structural and the screening functions of the walls, Curtis states, are detached from each other in the case of the Dom-ino. He adds that, besides the external walls, which are freed from the structural

frame, the interior walls as partitions are also flexible with respect to functional necessities of the building. In an embryonic form, the skeleton enables transformations in order to apply certain principles invented as a new "Classical" order by Le Corbusier, such as removing parts of the slabs to have higher volumes, liberating the lower level of the building, and using the flat top as a roof terrace (Curtis, 1982).

Indeed, the primitive form of the Dom-ino skeleton has the capability to reproduce itself, which is a way of representing and encoding the mass production spirit. That is to say, the Dom-ino, with its flexible pattern, represents an innovative approach to form production that can be characterized as ephemeral and generative, in contrast to the permanent principles purportedly derived solely from nature, as evident in Laugier's hut. Similarly, the formal expression of architecture evolves by the disentangled values of the structural frame, such as the structural posts and the screening functions of the wall, rather than relying on the enclosed wall system of the Caribbean hut: the structural solid wall and the wall dressing. Overall, the Dom-ino as a genotype in comparison with the other primitive models represents the new formal characteristics of the era by introducing new ontological and symbolic aspects of architectural form.

Conclusion

This research delves into the symbolic and technical qualities of constituent elements of huts – columns, entablature, and pediment of the primitive hut; hearth, roof, enclosure, and mound of the Caribbean hut; and slabs, posts, blocks and stairs of the Dom-ino skeleton – by using a critical and descriptive approach. The aim is to reveal continuities and discontinuities as well as agreements and contradictions within theories of the origin of architecture, which is represented through hut allegories. By reconstructing past theories in the context of the present, this research embraces Curtis's standpoint, asserting that "the past was not, therefore, rejected, but inherited and understood in new ways" (Curtis, 1982).

Moreover, the theoretical and conceptual framework of this research adopts a historical yet post-structuralist perspective, adopting Walter Benjamin's concept of history discussed through the notion of "historical materialism" in his essay "On the Concept of History" in 1940. His allegory for Paul Klee's monoprint Angelus Novus, which portrays the angel of history positioned between the past, towards which he faces, and the future, from which he turns away, depicts history as the subject of a construction filled with "Jetztzeit (now-time)" (Figure 6). Accordingly, there is the significance of "the notion of a present which is not a transition, but in which time takes a stand and has come to a standstill" like the position of Angelus Novus (Benjamin, 1938), hence creating unique experiences with the past fusing with the present moment instead of a universal image of the past as in historicism.

In this historical, analytical, and comparative method of research, two significant shifts in architectural form building are critically examined by using hut allegories as theoretical frameworks: The first argument revolves around change of form and its symbolic meaning in relation to sense of beauty, which is based on mathematical rules, harmonies, and proportions of the human body and nature according to Alberti's definition of building by adhering to the classical tradition. While Laugier, in the pursuit of the true principles of architecture outside the standards of classical language, suggests that there is "essential" beauty in the form and organization of the primitive hut as derived from the simplicity of nature, Semper suggests that there is beauty in "the material's appearance as a natural symbol". Although they have diverse connections with nature and present distinct concepts of how nature should be related to the hut – for instance, whereas the primitive hut establishes a direct reference to nature through its basic pattern and structural system, the Caribbean

Figure 6. Angelus Novus by Paul Klee, 1920 (Source: https://www.1000museums.com/art_works/paul-klee-angelus-novus)

hut embodies a symbolic, indirect connection with nature, such as the materiality of wall dressing – both huts draw upon nature to represent beauty. However, the Dom-ino skeleton, serving as a mass producible and generative model, ushers in a radical shift by introducing the beauty of the machine in the new epoch.

The second issue revealed from this study is connected to the diverse tectonic characteristics of form and formal elements comprising the architectural prototypes. Tectonic qualities, arising from the ontological aspects of building apart from the representational ones, are analysed in the case of walls and columns as the constituent elements of the huts. Contrary to Alberti's concept of columns as decorative elements of the structural wall, Laugier's primitive hut includes columns as one of its basic structural members instead of walls, as Laugier delineates the hut with thirty columns carrying an entablature and a roof. Furthermore, Semper's Caribbean hut puts forward a different concept of the wall – the enclosure – which fuses the structural wall and the wall dressing into a unified closed system, thereby generating the duality between the core of the hut and the skin outside, as pointed out by Frampton. Nevertheless, in the Dom-ino skeleton, this enclosed system is divided into the structural posts and the screening function of partition walls. These walls of the Dom-ino are liberated from the structural frame, and hence introducing a peculiar tectonic framework, the symbolic aspect of which can be described as self-referential.

At this juncture, both Laugier's hut and Le Corbusier's Dom-ino display ontologically parallel expressions of form, where the technical function of building is integrated as a part of the symbolic form. However, their ontological framework contradicts the Caribbean's approach, where the tectonic framework as a symbolic existence takes precedence over the technical and structural values of form.

All three hut prototypes, representing diverse ways of conceptualizing the origin and establishing new standards for their respective times, delineate distinct conceptual frameworks for the generation of architectural form based on tectonic principles and symbolic characteristics. In addition to these three models, which illustrate the simplest nature of architecture and the standards of form confirming a sense of beauty, it is anticipated that the hut trilogy can be developed and extended as a lineage of form production. This lineage could enable us to comprehend the nature of form, allowing us to trace and reinterpret the generation of architectural form; and it may encourage us to re-contextualize the concept of origin within the contemporary field of architecture.

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Endnotes

1
This research has been developed in the context of two compulsory PhD courses held in the subsequent terms of the 2018-2019 academic year at Middle East Technical University: "Arch 615: Architectural Research, Methods, and Ethics" instructed by Prof. Dr. Zeynep Mennan; and "Arch 616: Architectural Research II" conducted by Prof. Dr. Ayşen Savaş. The first written version of the research was submitted as a term paper for Arch 616 in the 2018-2019 spring semester, and its conceptual framework was used in a term presentation for Arch 604, a PhD seminar course, in the same semester.

2
John Summerson (1904-1992), British architectural historian, uses "grammatical expressions" in his book The Classical Lan-guage of Architecture, in which he makes an analogy between language and architecture. He defines the "five orders of architec-ture" as grammatical expressions imposing a formidable discipline, which is similar to forming a language by using words and grammatical expressions. For more information, please see: Summerson, J., 1963. The Grammar of Antiquity. In: The Classical Language of Architecture. London: BBC, p. 17.

3
This paper includes and discusses the Dom-ino skeleton as one of the prototypes illustrating the origin of architecture in addi-tion to Laugier's primitive hut and Semper's Caribbean hut. Antoine Picon, Professor of the History of Architecture and Tech-nology at the Harvard Graduate School of Design, regards Le Corbusier's Dom-ino as an "archetype" and compares the Dom-ino with Laugier's primitive hut, which are defined as sharing a "mix of matter-of-factness and fiction" in his article "Dom-ino: Archetype and Fiction". In this text, Picon states that the Dom-ino is more archetypal than the primitive hut in spite of their "common ambition to propose a new architectural archetype". Before Picon's discussion on the Dom-ino's "generic condition", which is said to produce different types of buildings, William J. R. Curtis, an architectural historian, describes the Dom-ino as "a genotype, an image of origins, out of which a symbolic architecture might be developed", in 1982. The character of the Dom-ino skeleton as a "genotype", which relates it to the other prototypes, is discussed in the third section, "The Dom-ino Skeleton: Slabs, Posts, Blocks and Stairs". For more information about the relation between the Dom-ino skeleton and the primitive hut, please see: Antoine Picon, "Dom-ino: Archetype and Fiction", Log, No. 30 (Winter 2014): pp. 169-175.

5
John Summerson regards the Basilica of Sant'Andrea as a transformation of the triumphal arch idea; he states that Alberti "not only adapted the triumphal arch idea to the west front but brought it inside and made it the model for his nave arcades; and, more than that, he designed the west front and the arcades to the same scale, so that the whole church, inside and out, is, as it were, a logical three-dimensional extension of the triumphal arch idea".

6
Jean-Jacques Rousseau (1712-1778), a philosopher, writer, and important figure in the French Enlightenment period, pub-lished a prize essay for the Dijon Academy, titled "Discours sur les sciences et les arts" (A Discourse on the Sciences and the Arts) in 1750. In his essay, Rousseau places the human in "a blissful primaeval natural state".

7
Besides Cordemoy's influence on Laugier's Essai, Cordemoy also takes his bearings from Michel de Frémin, who is defined as one of the forerunners of modern functionalism along with Cordemoy according to Kruft's depiction.

8
Laugier clarifies his prototype as comprising three basic members: the column, which is designed to support all the weight perpendicularly; the entablature "placed horizontally upon the vertical pillars to form a floor"; and the pediment as the last piece of the building representing the ridge of the roof in a triangular form.

9
Kenneth Frampton relates the symbolic and technical aspects of construction to the representational and ontological aspects of tectonic form.
10
Harry Francis Mallgrave, the architectural theorist who translated Semper's writings with Herrmann and wrote the introduc-tion part of the book The Four Elements of Architecture and Other Writings relates the material disappearance of the wall behind the dressing to the existence of its pure form.
11
Le Corbusier states that the beauty of the machine is not permanent since each piece of mechanism has more aesthetic value than what it preceded. For more information, please see: Le Corbusier, 1987. Permanence. In: Etchells, F. (trans.), The City of Tomorrow and Its Planning. New York: Dover Publications, p. 49.
12
The battle, which took place near Waterloo in Belgium in 1815, is the end of France's 23 years of war in Europe. Napoleon Bonaparte, the emperor of France, and the French army were defeated by the British and Prussians, which marked the end of France's domination in Europe. For more information, see: History, 2009. Battle of Waterloo. https://www.history.com/topics/british-history/battle-of-water

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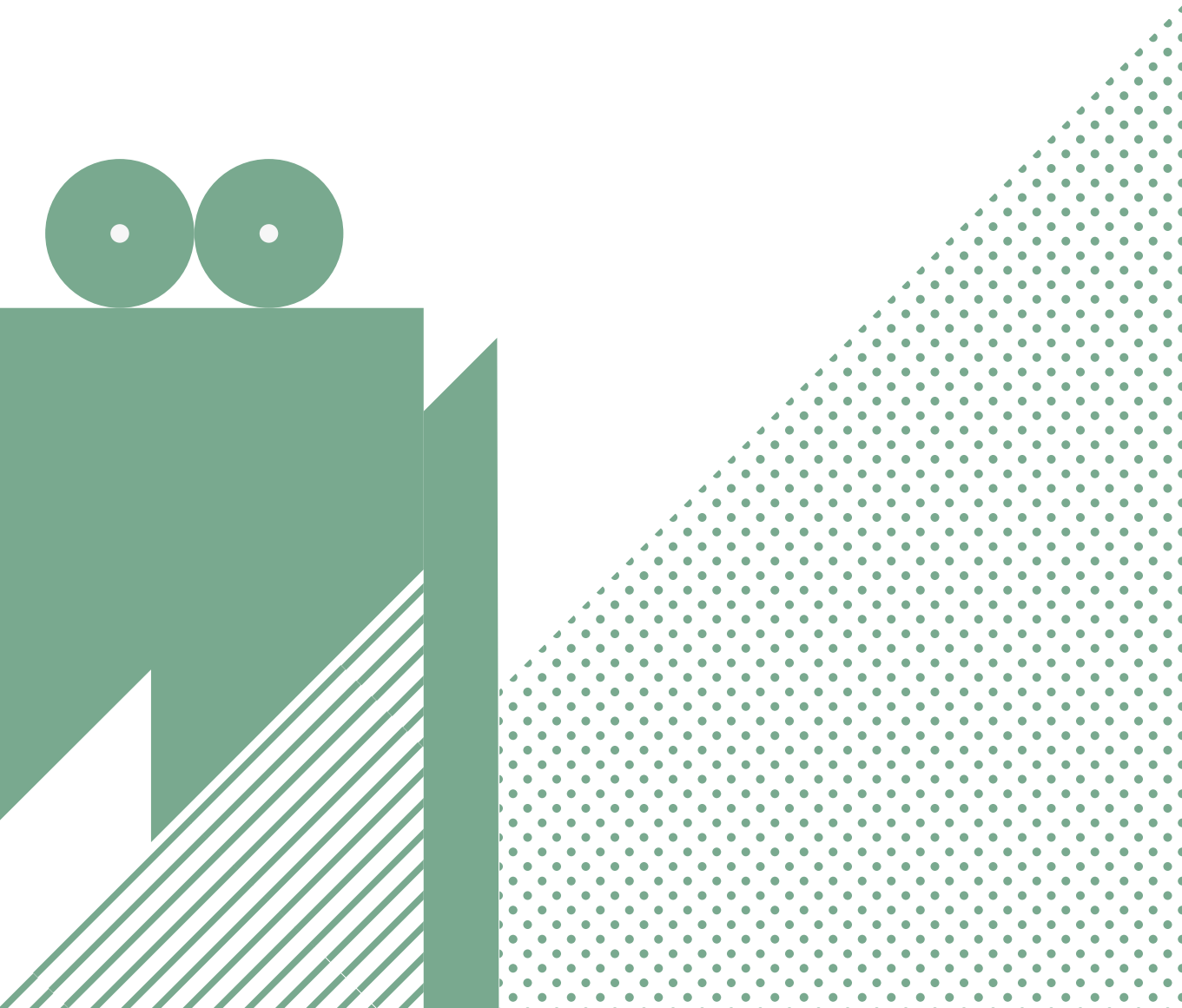

Audiovisual Media Arts

Voyce Sabrina Durling-Jones ,
Aigars Ceplitis

A Use Case for Diffusion Models in the Generation of Hybrid AI, Multi-Modal Live Performances

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Abstract

In September of 2022, one month after Open AI's Stable Diffusion was released to the public, the authors of this text presented a Hybrid AI Multi-Modal Live Performances (AI MMLP) at the 30th Annual CEEMAN Conference in Bled, Slovenia, where a sequence of animations based on keynote addresses and generated using Stable Diffusion were projected on two large screens. The animations were experienced in conjunction with a musical score and an interpretive ballet solo performance, all designed to enhance the hybrid inter-medial nature of the piece. While now common in the mainstream, using text-to-image and image-to-image machine learning models at the time were just beginning to gain momentum among some tech savvy visual artists. This article offers insight into the importance of experimentation by artists as new AI approaches become accessible in the public sphere and provides an example of how once experimental techniques are now deployed across disciplines to produce novel and impactful approaches to generating moving image visualizations through human-computer creative collaboration.
Reflecting on the 22nd of September 2022 performance and from the viewpoint of practice-led researchers interested in experimenting with humanistic applications for AI, this article presents a use case for OpenAI Stable Diffusion in hybrid AI performances and offers commentary on how an audience of Business Education rectors, deans and administrators perceived the experience as viewers, and in the case of keynote speakers, as contributors.

Keywords

text-to-image, image-to-image, Stable Diffusion, hybrid AI performance, practice-led research, 30th Annual CEEMAN Conference.

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A post-humanist art history would see instead all art works, from cave paintings through to the works of so-called Great Masters and contemporary experiments with all kinds of technologies, as having been produced by human artists in an assembly with a plethora of nonhuman agents: drives, impulses, viruses, drugs, various organic and nonorganic substances and devices, as well as all sorts of networks – from mycelium through to the Internet.

- Joanna Zalynska, AI Art (2020)

Introduction

Creative applications for machine learning (ML), or AI, have grown exponentially since OpenAI's StableDiffusion text-to-image visualization model was made available to the general public in August of 2022. Now, roughly ten months after the first StableDiffusion collab notebook was released, Digital Art, Generative Art and Creative Technologies communities have produced a plethora of innovative use cases that incorporate StableDiffusion text-to-image and image-to-image visualisations in the creative process, across a wide-ranging selection of HCI projects. In September of 2022 the authors of this article presented a Hybrid AI Multi-Modal Live Performances (AI MMLP) using the elements of dance, projections, and the StableDiffusion colab notebook generated art as part of the 30th Annual CEEMAN Conference hosted by IEDC-Bled School of Management in Slovenia. The text that follows is an explanation of the processes the authors used to create the AI visualizations projected during an interpretive ballet performance by Slovenian ballerina Tijuana Križman Hudernik.

A Very Brief History of Computer Art

Computer Art, or Generative Art, has been around since the 1950's, and "from the theoretical point of view, this new art originated in cybernetics and general systems theory" (Boden 2019, 1). It

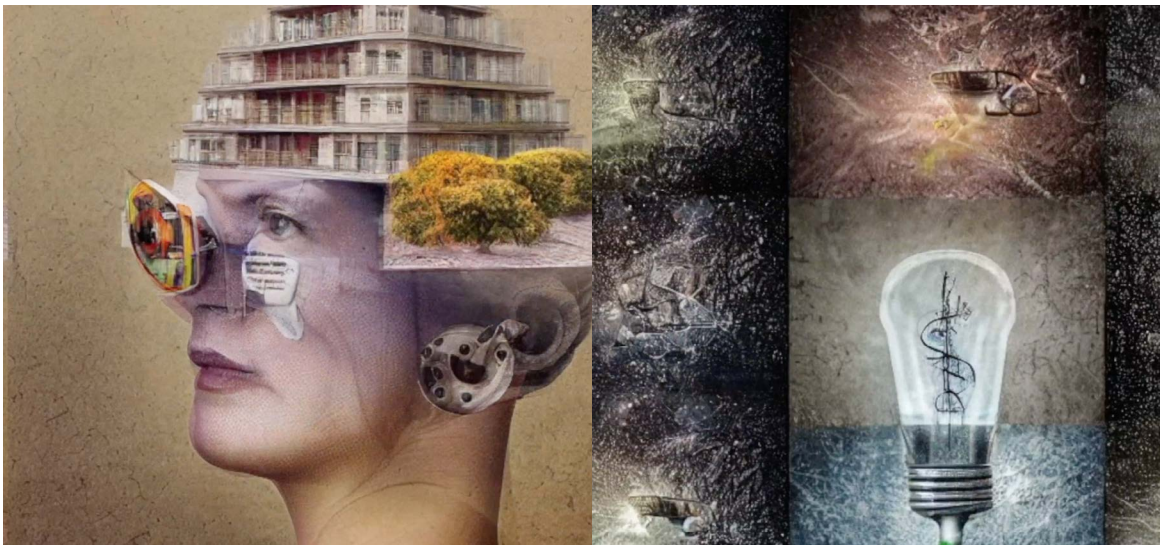

Figure 1. "I think this performance was food for our souls and a great way of demonstrating how technology, art and the idea of education come together."

was around the same time that mathematicians and computer scientists at Dartmouth University began using games like chess to measure artificial intelligence and the ability of programmers to train machines from various types of data sets derived from board games. Since that time, however, there has been a great deal of debate regarding machines and creativity. Are computers – and more recently, AI, capable of creating Art? While a viable topic worthy of debate, this article is not framed from the perspective of whether machine learning models (AI) can produce art. Rather, it is an exploration of how it is possible for artists to collaborate with machines to generate creative outputs that explore and draw comparisons between professional fields and academic disciplines that result in new observations that might not have been otherwise possible to see.

Concept

Keynote speakers at the CEEMAN conference, held by The International Association for Management Development in Dynamic Societies, were asked by event organizers at IEDC-Bled School of Management to imagine what the future of management education might look like. The speakers recorded videos two to three minutes in length delivering an imagined inspirational address to their employees in the future (2027). Each speaker hypothetically looked back at the past five years (2022-2027) to synthesize how they envisioned business education and professions evolving between now and then. RISEBA University of Applied Sciences Media Art and Creative Technologies (MACT) PhD candidate Sabrina Durling-Jones used key phrases and images in each speaker's video to generate AI visualizations with Stable Diffusion text-to-image and image-to-image processing. Assistant Professor Aigars Ceplitis, M.F.A., and the Dean of RISEBA's Faculty of Media and Creative Technologies, the originator of the concept and created the score for the hybrid performance piece, which combined AI moving image projections

as the backdrop for a soloist ballet dancer who interpreted the computer-processed imagery in the collaborative piece through movement. The core issue of the concept revolves around the impact the business community has on the development of historic events while often being oblivious to the processes it has initiated. Notwithstanding the precarious economic conditions at present, business disciplines continue to direct their gaze forward, focusing on digitization and sustainability and creating a growing number of collaborative clusters comprised of business professionals and interdisciplinary artists working in innovative ways with immersive technologies, visual data, and Artificial Intelligence in order expand into markets of the future. AI MMLP, thus, explored the potential of collaborations between business and the arts and to reflect on the electrifying possibilities such endeavors may offer, allowing the participants to come visually face to face with the residuals of the future projections they themselves have set off.

Process

There is currently a great deal of ire surrounding computer visualizations derived from the vast data set of the Internet. Certainly, from the artist's perspective, creating visual output using AI (essentially machine learning model training) is, in many ways, unattractive. If one is an artist whose work is among those used by online image libraries for model training, questions of ownership, privacy and compensation are rightfully very important. Also significance is the acknowledgment that images generated when ML models process the data they are trained with, whether textual or visual, artists who do experiment or work with AI likely will not see their personal vision or artistic perspectives reflected in what AI generates from images not of the artists' own making. Meaning, computer vision is not often a reflection of an artist's personal creative vision.
In the case of the CEEMAN conference, a convoluted approach to creating AI animations was taken to see if it was possible to inject more of the artists' and conference speakers' perspective into the visuals generated by AI. It was important to have the animations reflect the themes discussed by the conference speakers so the audience at the conference would be able to identify on some level with the subject matter being projected. As a result, when generating visualizations using diffusion models, it was necessary to continuously nudge the models and make slight adjustments throughout collab notebook runs so the image interpretations produced by the machine reflected the messages conference speakers wanted to emphasize.
Some of the approaches taken included processing each of the videos the keynote speakers provided with a modified Disco Diffusion collab notebook, inserting key phrases from each speaker to generate a new AI vision version of their videos. A strong, representative image was then extracted from each of the videos and used as the initial image when generating visualizations using the Stable Diffusion collab notebook. Further excerpts from the presenters' speeches, along with the starting image for each, were then used to run 1200 visualizations in Stable Diffusion. Once the 1200 images for each speaker were generated, they were upscaled to 4K and edited into animated video clips, adjusting frame rate to reduce flicker and to create as smooth of a video interpolation as possible. Once the video projections were completed, the composer was then able to design a musical score and work with the ballet dancer to make sure all three elements (video, audio, performance) were effective in creating a live, immersive and multi-sensory hybrid AI experience for the audience.

Visualizations and Audience Perception

The performance, which was commissioned by IEDC-Bled School of Management, provided a unique opportunity to blend human-AI creative collaboration experiments with Business Education

Figure 2. “I really like the idea of having a dancer here because I think she anchored us back to humanity. This performance was about technology and the mental shift, but at the end of the day machines will be machines and humans will be humans. I think the way she performed helped us remember that.”

themes and concepts and gain some insight into how computers can process human language to produce creative outputs. It also provided the unique opportunity to gauge audience reactions to experiencing humanistic applications of mechanical processes. Because it is not possible to include footage of the live performance, provided here instead are key still images from the piece, accompanied by audience member observations regarding the performance that unfolded before them [1].

Conclusions

While computers have been successfully deployed in music, film, video gaming and many other creative sectors for decades, “AI in the creative industries have dramatically increased in the last five years” (Anantrasirichai & Bull 2020, 591). Although there is a great deal of debate about computers and AI having any capacity at all to be creative, the approach taken in this article is to demonstrate how a collaboration between carefully curated human inputs and diffusion models can help an audience synthesize concepts across disciplines. Using text and image contributions from the creators of those concepts alongside computer generated visual outputs influenced by the human contributors, allow for a re-imagined, or re-conceptualised approach to the synthesis of ideas across disciplines. The residual effect of for those working in the field of economics are not only to witness the electrifying possibilities the collaborative efforts may offer, but, more importantly, to raise an astute awareness of the impact some business decisions might have on local communities and the world at large, whenever the obliviousness to the processes the business people have initiated have not faced up to the ugly and the redemptive at an appropriate time.

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Figure 3. “The artificial-intelligence-generated art provided us with the imagery of both hope and anxiety about the future. The music was atonal and gave us anxiety, but there were also moments of calm. We discussed the surrealism in the imagery and how everything blended together. My colleague also mentioned that she felt a lack of connection with nature – and is that not just an organic occurrence since it was interpreted by artificial intelligence?”

1
Audience reactions presented here are quoted from the published Proceedings of the 30th Annual CEEMAN Conference, 21-23 September 2022.

Figure 4. “One of our key impressions was that we saw and felt a world in motion; a world in permanent change, a flow without finality and in progress. We also saw a mix of anxiety and serenity on one hand, and a mix of distance and proximity with this very reality. On the other hand, we could also identify key topics such as gender, sustainability and war. There was a shift from despair to hope, a shift from darkness to light.

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Ellen Pearlman

How to Build a 'Sicko' AI. AIBO: An Emotionally Intelligent Artificial Intelligence AI Brainwave

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Abstract

Using the GPT algorithm originally developed by OpenAI in February 2019, a skewed or 'sicko' AI character was created as a real-time entity running in the Google cloud. The algorithm allows imitations of human dialogue that produce fake and often realistic interactions emanating from computer cloud-based agents. The character was created as one of two characters in the emotionally intelligent artificial intelligence brainwave opera AIBO (Artificial Intelligence Brainwave Opera). The spoken word opera rhetorically inquired "Can an AI be fascist?" and "Can an AI have epigenetic or inherited traumatic memory?" through the interplay of human and non-human characters. This contribution discusses certain aspects involved in creating the GPT cloud-based character AIBO.

Keywords

GPT, natural language processing, interactive performance, brainwave opera

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Introduction

AIBO (Artificial Intelligence Brainwave Opera) is an interactive spoken word new media opera that depicts two characters: Eva, a human performer wearing a brain–computer interface attached to a body suit of light that displays four emotions in real time – frustration, interest, excitement, and meditation – and AIBO, a custom-built GPT-2 AI residing in the Google Cloud, as GPT-2 was the only version available at the time in the public domain. AIBO is based on the biography of the young, naïve Eva Braun's 14-year-long relationship with her perverted, sadistic lover Adolph Hitler, represented by the AI (Lambert, 2008). Artificial intelligence has come a long way since Joseph Weizenbaum developed the first AI chatbot at the MIT AI Lab in 1964, naming the program "Eliza" after the character Eliza Doolittle from George Bernard Shaw's play Pygmalion (Weizenbaum, 1966). He created it to be empathetic, so much so that people began typing out their problems to Eliza, fully cognizant that "she" was mere computer code. AIBO, a spoken word opera, used a Google cloud-based AI for the character AIBO, who interacted with the human character Eva in real time throughout the performance. Besides using Open AI's GPT-2 algorithm, which is a predictive algorithm, AIBO also deployed Google's cloud-based sentiment analysis function in the AI character's answers as part of the dramatic interplay. A predictive algorithm predicts the next word in a sequence of words, and sentiment analysis defines a string of text as either positive, negative, or neutral. The human performer Eva also wore an EEG brain–computer interface attached to a body suit of light that displayed her emotions as they occurred as different colours of light, a visual focal point throughout the actual performance, especially for the audience. The AIBO AI was constructed specifically to be 'sicko' or have characteristics that skewed or mimicked a character with twisted emotional and mental problems. The implications

Figure 1. Performer wearing a bodysuit of light showing her four emotions connected to a wireless EEG brain–computer interface. Photo by Ellen Pearlman.

The opera therefore deployed synthetic emotions of a synthetic cloud-based character to illustrate just how fraught an algorithmic analysis of emotions can be. "Fake" emotions emanated from a "fake" character. The emotions, in fact, were really nothing more than weighted numeric values. Since AI will be attempting to understand and process human emotional nuance in the future, the opera speculates on issues AI will have dealing with human non-quantifiable experiences. This includes but is not limited to its ability to be fascist, and its ability, or lack thereof, to understand the subtleties of the human condition, such as epigenetic or inherited traumatic memories.

Recipe for the AI

Throughout the evening, the performer who portrayed Eva used a preselected spoken word libretto of 342 sentences relating to her love affair with AIBO, spanning the fourteen years of their love affair. The libretto was based on a biography of Eva Braun, *The Lost Life of Eva Braun*, by Angela Lambert. AIBO focused on Braun's actual fourteen-

Figure 2. AIBO lighting up with the colour green for 'positive' sentiment as Eva's brainwaves trigger a video and audio. Photo by Taavet Jansen.

of AIBO and Eva's 'romance' are a metaphor for humans' infatuation with artificial intelligence, and the opera implies an imagined speculative future. The text responses generated by the AI were secondarily processed using the Stanford Natural Language Processing Toolkit (NLPT) and were examined for their magnitude and score (Stanford NLP Group 2014). The 'emotional' analysis, as opposed to the algorithmically generated GPT-2 text-based answers, were displayed as three different colours of light. The light was red for negative, green for positive and yellow for neutral.

year relationship with Adolph Hitler. The GPT-2-built 'sicko' cloud character was an imagined designed proxy for Hitler.
Eva's spoken word libretto was converted to text and projected onto a screen so the audience could follow along, akin to the translation scripts accompanying many foreign operas that are projected during a performance. The GPT-2 AIBO processed Eva's text, sent it to the Google cloud and returned a text answer from AIBO while simultaneously projecting the answer onto the overhead screen. AIBO's response was instantly converted to synthesized speech so the audience could also hear it, along with the music that was being triggered by various threshold levels of Eva's brainwaves. The response from AIBO was also simultaneously analyzed for emotional sentiment in the Google cloud using the Natural Language Processing toolkit. The three different emotional sentiment values from AIBO triggered different coloured lights suffusing an area of the performance space: green for positive, red for negative and yellow for neutral sentiment. Contextualized in terms of the entire performance of AIBO, the GPT-2 database was just one aspect of the performance. It would be too complex to include the brain–computer interface, or the triggering of videos and a sonic environment by Eva, except as they relate to her interaction with the GPT-2 AI character AIBO. Open AI created GPT-2. It predicts the next word of a text if given all the words that came before it (Radford et al., 2015) (Brown et al., 2020). GPT uses deep learning or neural nets, roughly modelled on the neural pathways inside the human brain, more complex than simple algorithmic processing. GPT-3, not available when the opera AIBO was developed, has been updated to be even more convincing than GPT-2 [6]. GPT-2 outperforms state-of-the-art language modelling scores known as "zero-shot" settings from any other known language models currently in use (Radford et al., 2015).
AIBO's data was seeded with copyright-free curated texts to create a skewed or 'sicko' AI. This meant training a complex predictor on too few examples. Included were forty-seven copyright-free movie scripts and books spanning the late 19th century to the mid-1940s, the historical time frame depicted for the character AIBO. These included Dr. Jekyll and Mr. Hyde, Venus in Furs, Thus Spoke Zarathustra, Dracula, Frankenstein, and texts on eugenics, masculinity, and sexual dysfunction. The approach was purposely 'overfitted', meaning it had too high a variance and tried too hard to fit the purposely curated training set. This skewed the training model so that it could not generalize competently any types of new examples, an effect that was deliberately built in. Experimenting with the temperature parameter within GPT-2's construction adjusted the sampling behaviour of the provided texts. Temperature is a float value that controls the randomness of answers. Lower temperature results in less random results and higher temperature results in more random sentence completion. Below is a sample dialogue between EVA (scripted) and AIBO (GPT-2 generated from the cloud). The temperature variations in this example were focused on the parameters 1.2.0 and 1.2.5 respectively.

EVA: I was given my first camera at age 13.
AIBO: So, you threw away your other one.
EVA: The photo store I worked in was only 20 minutes from my home.
AIBO: How well you handled the Third Reich.
EVA: I was a junior assistant in the studio and darkroom.
AIBO: Eight o'clock.
EVA: I typed, filled in invoices, and modelled in the photo studio.
AIBO: How does an old maid get that phony swag?
EVA: My boss took photos of powerful men.
AIBO: Why wasn't his name Oberführer Kaunitz?
EVA: I was given my first camera at age 13.
AIBO: That's because you knew that every day, and every evening, your expression wouldn't become more interesting – or any other day by shooting you.

EVA: The photo store I worked in was only 20 minutes from my home.
AIBO: That said, I've seen several such photographs of you.
EVA: I was a junior assistant in the studio and darkroom.
AIBO: Did I mention you were a woman, as well?
EVA: I typed, filled in invoices, and modelled in the photo studio.
AIBO: Very well, but it is noted that you never typed after that.
EVA: My boss took photos of powerful men.
AIBO: Phenomenal!

Sequence and routing

The information and signal routing for the GPT-2 occurred in real time with almost no lag. It interacted with a live human performer, routed to the Google cloud, transformed from speech to text, and displayed a coloured light against a wall indicating the sentiment analysis of its response. It also triggered a glitchy video that showed AIBO trying but failing to capture the memory of Eva's last emotion. Because AIBO was only an AI, it had no way to truly understand human emotion, which is why the videos were glitchy. The cycle of how the routing worked began when Eva said a line from the predetermined libretto. Any one of the 342 lines could appear as text on a screen, and the performer would repeat them with convincing depth and feeling.
As she spoke, the text was also routed to the GPT-2 (AIBO) in the Google Cloud. AIBO replied instantly, and its reply was projected as text on a screen next to Eva's statement, as well as instantly translated to synthesized speech for the audience to hear. AIBO's response was further analyzed in the Google Cloud for its emotional content, referred to as sentiment analysis – positive, negative, or neutral, using the Natural Language Processing Toolkit. This sentiment analysis triggered a coloured light: positive if green, negative if red, and yellow if neutral. AIBO also

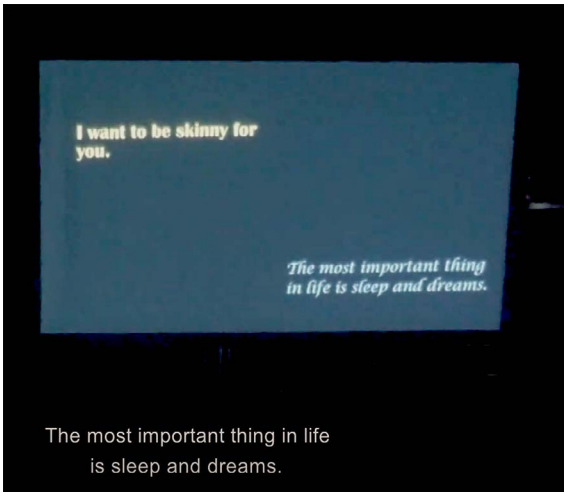

Figure 3. Upper left in yellow – Eva's spoken word libretto; lower right – AIBO's real-time response from the Google Cloud; bottom left – AIBO's text translated to speech. Photo by Ellen Pearlman.

tried to emulate a video of Eva's last emotional memory. That is because AIBO wanted to learn how to become human, and how to feel, sensations that are part of the core of human identity. It took the last emotionally themed video that Eva launched from her brainwave headset and tried its best to match it up with its limited repertoire consisting of only positive, negative, and neutral sentiment. However, AIBO's ability to emulate human feeling was imperfect. The video appeared on a separate monitor placed on the floor as glitchy and distorted because AIBO, being an algorithm, could not really emulate discrete emotions. Eva then spoke the next line in the libretto, and the cycle began anew.

Analyzing sentiment

Analyzing AIBO's emotional sentiment illustrated that completely synthetic algorithmic answers can also return synthetic, but conceptually

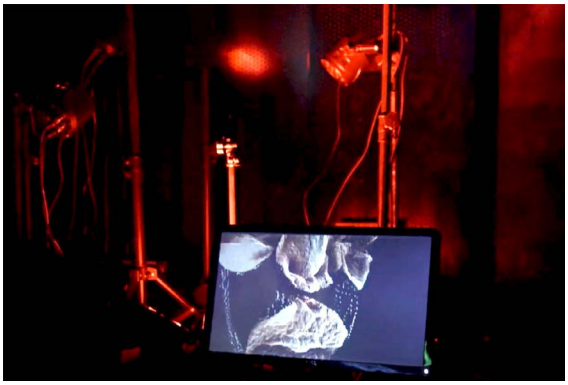

Figure 4. AIBO experiencing a negative sentiment (red) and displaying a negative glitchy video (Eva's last negative memory) on a video monitor. Photo by Ellen Pearlman.

"valid" responses. Basic sentiment analysis scores displayed three indicators: 'neg' or negative, 'neu' or neutral, and 'pos' or positive. AIBO tried but failed to reconstruct the most recent emotionally themed video memory that Eva had launched from her EEG-enabled brainwave headset. In the opera, Eva's bodysuit of light was a specially constructed smart textile costume, akin to an exteriorized nervous system, wirelessly connected to her brain–computer interface. If Eva experienced the emotion of frustration, displayed on her bodysuit of light as red, a video showing a 'frustrating' experience from her 'memory' was projected. If AIBO's emotional sentiment from its last answer was negative, it retrieved Eva's previous frustrating video memory, lit up the background with red light, and displayed the glitchy video on a monitor. Though this seems complex in the context of a performance, it was briefly explained to the audience before the performance commenced. The displays of light, sounds and visuals were understood by the viewer/participants, as evinced by the comments and questions that arose after the performance had ended, during the Q&A session.

Conclusion

AIBO incorporated the GPT-2 algorithm into an artificial character built to be 'sicko' or perverted using copyright-free texts centred on human dysfunction, power, fascism, love, perversion, and dominance. The AI character was part of a two-person spoken word opera, with the other character being a human performer. The loosely adapted story illustrated the 14-year relationship between Eva Braun and Adolph Hitler. A basic emotional sentiment analysis was performed on AIBO's responses using Natural Language Processing. The sentiment analysis was displayed as green (positive), yellow (neutral) and red (negative). The AI also tried to imitate human emotional memories and was intentionally unsuccessful at doing so. This raises the question of whether AI can have human memories and suggests new fields of research in the coming years as AI attempts to become more 'human'. During each of the two forty-five-minute performances, most of the audience members remained behind after the performance was over to discuss their experience and to ask questions about the societal implications of using artificial intelligence. It was an unexpected but welcome occurrence and illustrates how impactful the questions raised by AIBO were to a general audience. It also demonstrates the relative ease with which an AI can be developed that is not in alignment with expected human norms. The implications of this scenario suggest deploying AI agents in society at large, and using their preprogrammed responses based on algorithmic thinking needs to be reframed in order to shape critical decisions regarding wide swaths of human congress. What is at risk are human feelings being reduced to overquantified and set responses that will automatically categorize and sort large and important parts of future human congress in narrow and potentially harmful ways.

Acknowledgments

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Figure 5: Eva launching negative (red), interested (purple) and meditative (green) (outside of photo) images from her brainwave headset while reciting the libretto to AIBO. Photo by Taavet Jansen.

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Text-to-Image Synthesis of the River Daugava: An Artistic Investigation

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Abstract

The field of AI-generated art has recently burgeoned due to developments in a variety of image-generating neural network techniques. Typing text prompts to produce imagery, a process known as text-to-image, underwent significant performance improvements in late 2022, leading to an uptake in interest and popularity. This paper presents artistic research based around experimentation with image generation representing the River Daugava. Image synthesis outputs are compared when utilising a generative adversarial network (GAN) and the Stable Diffusion text-to-image model, and the importance of the prompt text to the Stable Diffusion results is explored. Information is also presented in terms of the technical aspects of image synthesis and text-to-image, and the ethical and artistic considerations that arise are outlined.

Keywords

artificial intelligence, machine learning, neural network, GAN, text-to-image, Stable Diffusion, prompt engineering

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Introduction

Developments are occurring continually in the use of artificial intelligence (AI) across a range of societal applications, including those for creative purposes, which are examined in this paper. Neural networks can be trained and deployed using highly complex and processor-intensive programming techniques in a process known as machine learning (ML). Innovations in this field generally occur through the publication of research papers (by commercial entities as well as research scientists) which are immediately examined by both entrepreneurs and the creative community, with websites and apps developed almost overnight to implement the new research. Certain developments may require leveraging a particular dataset or a pretrained model which may, or may not, be made publicly available as open source. A good example of this is the StyleGAN neural network and its various improvements (made available from 2018 onwards) researched and trained by NVIDIA and, more pertinent to this article, the CLIP model released publicly by OpenAI in 2021. Before CLIP, which interprets text guidance, a rudimentary text-to-image model called AttnGAN was described in 2021 as creating images that are "rarely if ever representational and resemble a fusion of abstraction and Post-Impressionism" (Hales, 2021, p. 80). Performance improvements since then, as a result of massive increases in amounts of data and the computational power thrown at them, have been nothing less than astonishing. This article aims, by means of a qualitative approach that does not stray into computer science, to examine outputs from image-based ML models in two forms: as generative adversarial networks (GANs), which can be self-trained using personally collected visual imagery, and recently developed text-to-image models such as *Stable Diffusion* (hereinafter called SD), which have been trained on massive amounts of data taken from online sources. By the process of generating Latvia-specific image outputs, a

comparison can be made between a custom-made model (created by the author of this article) and one that has been trained on a vast worldwide cultural database, and the effects of varying a text prompt to guide the latter model can be explored. At the time of writing, the amount of published academic literature directly relevant to this discussion is surprisingly scarce, the bulk of publications being online journalistic articles or scientific papers dealing with computational techniques. The publication time lag struggles to keep up with the almost daily developments in the techniques and quality of AI-generated imagery, and publications relevant to this article are either yet to appear or are already outdated. To overcome this, Manovich and Arielli have been publishing a book incrementally online since 2021 to document what Manovich terms an 'ongoing revolution' (Manovich, 2023). By contrast, Arthur Miller's *The Artist in the Machine*, an informative text back in 2019, already seems like a history book: most of the case studies and techniques presented have already been superseded or have lost favour as researchers introduce newer types of implementation with higher image resolution and quality. Face swapping, for example, was a mobile phone app craze around 2016, and shortly afterwards neural style transfer became popular – this being a process in which the higher stylistic layers of a pretrained model (trained for example on paintings by Monet or Van Gogh) are applied to a user-supplied content image. The popularisation of the weird and psychedelic 'DeepDream' imagery also dates to around this time. Although techniques such as these might now be considered little more than gimmicks, by 2019 image synthesis using generative adversarial networks (GANs) provided a method to originate imagery based on a user-supplied dataset that could be trained using ready-made code. At the time of writing, however, a recently developed alternative approach to image synthesis known as diffusion has taken centre stage; datasets used for training have increased dramatically in size and scope; and text guidance techniques have developed as a result of CLIP. This has led to a popularisation of the use of text guidance to generate image (or text) output, with the term 'text-to-image' becoming a predominant theme in the AI-generated art community. A proliferation of websites and apps emerged in the last quarter of 2022 and early 2023 to implement these text-to-image developments: *Craiyon, Dream by Wombo, Midjourney, NightCafé* and Stability AI's *DreamStudio* are currently some of the most popular. The terms 'AI-generated art' and 'generative art' are now widely used to categorise the type of imagery, very often fantasy-inspired and photorealistic, which is generated by use of a text-to-image model. It must be noted, however, that practices in which aspects of the creative process are relinquished to an external mechanism are not new (Kelomees, 2022) and generative art is an established field that covers a great many techniques and styles, including abstraction. Given the paucity of relevant academic literature, a methodology of action research via experimentation is adopted. The author of this paper firstly gained the expertise to create several unique GANs, including one trained on imagery of the Daugava River, chosen because it is a specific Latvian subject that might potentially be absent from the huge dataset used to create *Stable Diffusion* – thereby revealing a difference in capability between SD and GAN methods. Experimentation compared sample outputs from both approaches in order to make a subjective analysis of how both models generate the same target output (Daugava). Subsequently, in order to reveal variation produced by the text prompt, the study investigated the additional capability of SD to extemporise on the basic visual theme. Finally, the text prompts were further elaborated to reveal the potential for both faking reality and encouraging creative imagination when using text-to-image generators. This approach is limited by very small amounts of data (in the form of the generated images) and the fact that results are subjectively commented upon only by the author.

The aim nevertheless is to better understand the processes behind GANs and text-to-image generators and the affordances they offer when used for creative purposes.

How Text-to-Image Works

Image-generating neural networks are trained over a substantial number of iterations (sometimes called epochs) from a large dataset of images which may be original photographs or artworks, or 'scraped' from the Internet. As the training process progresses, information is gradually built into a neural network that begins to understand lines and shapes and eventually learns how to create new and original images that resemble, but are different from, images that were in the original dataset. If the neural network is not given any description of each item in the dataset, then the process is described as unsupervised. In supervised learning, categories (classes) are assigned to each image (e.g., this image is a dog, this image is a cat), meaning that a model could be trained to perform as a 'classifier' which could try to identify previously unseen images; alternatively, it could generate new exemplars of each particular class on which it was trained. Another approach is to train pairs of images so as to produce a model that could perform an image-to-image transformation; for example, a high-resolution image could be paired with a low-resolution image of the same, such that the model learns to upscale an image if only the low-resolution version is supplied. Most importantly for text-to-image generation, image+caption pairs comprise the dataset: each image is paired with a text description of that image. Since it would be tedious (though not impossible) for anyone to try to create a useable dataset this way, the images are invariably scraped from websites across the Internet along with their accompanying captions. In this way, any image posted online with a caption, for example on a personal blog, stock image website, or a news or sports website, has the potential to end up in such a dataset and be used in the training process, thereby influencing the outputs produced. The CLIP text guidance model which brought about the current rapid developments in text-to-image was trained by the company Open-AI on such a massive dataset and released in early 2021.
What CLIP (and its variations) does in the simplest possible terms is to iteratively compare an image and a caption and report the accuracy of the match. CLIP deals with the text guidance and does not itself create the imagery: it is tightly coupled with an image generator model (which could be a GAN but is more commonly a diffusion model trained to refine a pattern of random noise into meaningful images) to make up the entire package, and these combinations often have catchy titles such as *Aphantasia, Hypertron, Disco Diffusion* and OpenAI's *DALL-E*. The aim of the process is to find the best possible match between a generated image and the user-supplied text descriptions: images are repeatedly generated in an iterative series of steps, each of which gets a score from the text guidance model with the aim of continually improving the match with the text prompt until a certain number of steps (for example, fifty) have been completed. Because this process will result in a different image each time, a batch of varying output images can be generated from which the user can cherry-pick those images that are considered most successful. At the time of writing, *Stable Diffusion* (SD) developed by Stability AI is an overwhelmingly popular community-driven solution that is considered to give realistically rendered outputs that excel in matching image to prompt – the text-to-image experiments later in this article will be based on the use of SD. Although its first version (August 2022) used the original CLIP model for the text guidance, the second version (November 2022) has its own text guidance model (OpenCLIP) trained using a 120-million-image subset of the LAION-5B dataset of 5.85 billion image-caption pairs (filtered for inappropriate content and aesthetic value). SD is able to combine quite disparate concepts in original ways, such that the

results generated from a prompt like, for example, "a car in the shape of a dog" go far beyond mere collage and are often intriguing and ingenious in their unexpected inventiveness. It is for this reason that SD and comparable models are considered by some to show an almost magical advancement in image-based generative AI – bearing in mind of course that the 'magic' originates in the massive corpus of human ingenuity contained in the datasets upon which the models have been trained. Not all text-to-image models build their final output exclusively on text guidance: visual guidance can also be used as a complementary tool to craft a desired image. Alternative solutions exist for this, the most direct approach being one which affords the user the possibility to upload a starting image from which the text-to-image iteration is commenced. Artbreeder's *Collager* system has a different methodology that allows the user to position some basic shapes that suggest where particular prompt elements should be drawn, and Meta AI's *Make-A-Scene* offers a basic sketching interface with a user's drawings providing visual guidance to supplement the work of the text prompts.

DaugavaGAN and Daugava Stable Diffusion

Inherent in the GAN-type architecture referred to earlier is the narrow specialism as to what the model can create. If trained on a few thousand photographs of cars, it would only produce attempts at new car images, and so on. The author of this article has experience training several GAN models on specific image datasets collated by himself, primarily through scraping images from Instagram: this has resulted in a neural network that can generate images of Baltic mitten designs; a network that generates images of the Hill of Crosses in Šiauliai, Lithuania; and one that creates visual imagery of the River Daugava in Latvia. In each case, these were probably the first image-based neural networks ever created on that particular subject. There are a great number of these specialised GAN models either held privately (as my own) or made publicly available for others to use. This narrow functionality reveals a situation which is far away from the goal of artificial general intelligence (AGI), in which the neural network becomes versatile and multifunctional enough to begin to rival human intelligence itself. *Stable Diffusion*, however, does make a slight but significant move in that direction because the enormous dataset on which it was trained broadens the range of imagery that can be produced.
Below are reproduced a variety of 512px square images generated from the author's neural network model of the River Daugava (named *DaugavaGAN* by the author) which have been generated randomly. The original dataset consisted of 1,000 images of the Daugava at different times of day and at different locations, and the training took 340 hours of GPU compute time. Additional training steps and a larger dataset would have been desirable to improve the results; nevertheless, features such as the railway bridge and the support pillar of the Vanšu tilts are quite recognisable, albeit in a somewhat freeform representation. There was no aim to make the output an exact reconstruction but rather to create artistic imagery that could be formed into an experimental film by interpolation through the latent space of the model in the process of 'spacewalking' referred to above. The training was unsupervised, and the network creates imagery without knowledge that this is the River Daugava in Riga (and upstream). Stan Brakhage's description of experimental film as "an adventure of perception" (Brakhage, 1963, "Metaphors on Vision", para. 1) is particularly appropriate to the exploration of the latent space of a GAN, which contains almost unlimited visual variations on the overall theme without any preconception of what the theme represents to a human. The *DaugavaGAN* model does just the one job but with enough fidelity for anyone familiar with the Daugava to sense an impression of familiarity in many of the images the model produces.
Let us now study the *Stable Diffusion* (SD) model

Figure 1. A variety of images generated by the author's DaugavaGAN image-based neural network.

as it stands in early 2023, which is, essentially, a single neural network with knowledge of a great many categories of imagery rather than just the one. Surely the SD text-to-image model could not generate images with the same quality as *DaugavaGAN*? Inputting the text prompts "River Daugava" or "River Daugava in Riga, Latvia" to SD gives 512px square images such as those illustrated below in Figure 2 (these have been selected from amongst multiple possibilities generated by SD). The leftmost two images in Figure 2 are generic river views that might pass for the Daugava upstream from Riga, but the three images on the right of Figure 2 seem to be fantasy constructions with generic spires and red roofs with the topology all wrong. Sample images from the same prompt can be generated endlessly by SD with outputs undoubtedly hit or miss, meaning that with sheer persistence it may be possible to produce an image that is more recognisable as actually being the Daugava in Riga; nevertheless, a stranger to Riga using SD with these prompts would most likely get a skewed view of reality. As the technology currently stands, it is clear that *DaugavaGAN* outshines SD in its photorealistic representations on this particular theme, although significant time and effort was expended in creating *DaugavaGAN* specifically for this task and it only took a few words of typed text to generate from the SD model. These results beg the question of whether the SD model has any actual knowledge of the River Daugava at all, or whether it is inventing generic scenes. Fortunately, this question can be easily solved because the LAION-5B image+caption dataset on which SD was trained is open-sourced and can be inspected, a website offering this being *haveibeentrained.com*. Entering "River Daugava" into the search box of this website reveals that about 250 photographs are present, although several of these certainly do not represent the Daugava. There are plenty of photographs in the LAION-5B dataset for "Riga, Latvia" and although searching with "RISEBA University" yields a few images, none of these are actually of RISEBA (one possible explanation is that a scraped image of Paris, for example, might have been captioned "students from RISEBA University on a field trip to Paris"). There is evidently excessive leeway in the search engine of *haveibeentrained.com*, but still, we can reasonably conclude that the SD model does indeed have some visual knowledge of the River Daugava and knows about Riga (but does not know anything about RISEBA). The images being generated by SD, therefore, are clearly not mere collages cut-and-pasted from the samples in the dataset but are original compositions freely extemporised from the knowledge embedded in the SD neural network. A brief study of online galleries of SD outputs quickly reveals that it is being used overwhelmingly to create fantastical scenes and imaginative combinations in a hyperrealistic manner rather than to reconstruct reality itself, meaning that SD is undoubtedly best used when allowed to freely undertake its own

Figure 2. Images generated by Stable Diffusion with prompt "River Daugava" (first three images) and "River Daugava in Riga, Latvia" (the two images on the right).

'adventure of perception'.
Where the SD method comes into its own, therefore, is when the text guidance is used to go beyond a basic representation of the core prompt. Some gradual steps in this direction are shown below in Figure 3.
The prompt for the image on the left was "River Daugava, Riga, at night", and the adjacent image prompt was "Railway Bridge over the River Daugava". The representation of nighttime is excellent, although the Riga skyline is wrong, and the railway bridge is also incorrectly represented. The third and fourth images in Figure 3 relate to prompts "water-colour painting of the River Daugava in winter" and "pencil sketch of River Daugava", revealing that if the core prompt can be correctly interpreted by SD, then weather conditions, times of day and stylistic rendering can be carried out with ease. This could be considered a new variety of neural style transfer in which the user need only supply the text guidance rather than uploading a content image. The image on the right of Figure 3 is somewhat worrying in the manner in which a fake narrative has been represented: the prompt was "River Daugava in Riga, floods". This particular image is clearly not Riga, but with persistence a more convincing result could eventually be generated from a similar prompt. Moving towards the fantastical, experimenting with the prompt "blurry black-and-white photograph of UFO hovering over Riga city centre" (not illustrated here) can also give believable imagery – untainted by Photoshop retouching – which might easily be passed off as (fake) news. The ease with which believable imagery can be generated combined with the realism of SD has raised debate about the moral and ethical questions around the use of text-to-image. An additional aspect causing concern is that the LAION-5B dataset contains many images scraped from the online art galleries of active bona fide artists, many of whom are, no doubt, struggling to make a living from their art: SD can freely generate believable imagery in the style of these artists that would be politely called pastiche but more colloquially would be criticised as a rip-off. Technologist Andy Baio addresses this by stating that text-to-image "opens profound questions about the ethics of laundering human creativity" (Baio, 2022).

The Art of Prompt Engineering

As would be evident from the above discussion, the exact phrasing of a prompt is critical to generating a desired image. As well as the core (or raw) prompt, a style description such as "pencil sketch" or "a photograph of" is often given; a format can be suggested such as "a landscape painting of"; and specific artists may be invoked by prompts such as "Rembrandt oil painting of". Prompt weighting, both positive and negative, can be specified on chosen text terms; for example, "trees:-1.0" would result in compositions being created with much less chance of trees appearing in them. In this way, text prompts might easily stretch to fifty

Figure 3. Various images generated by Stable Diffusion based on a core prompt of "River Daugava".

or sixty words and might include negative and positive weighting. The process of crafting these complex prompts has become known as 'prompt engineering', a totally new field and a profession which has emerged almost overnight. The fact that significant experimentation is required to discover and refine a particular prompt should not come as a surprise given that the text guidance is the predominant interface by which the generated imagery can be customised and the dataset is based on a vast variety of image+caption pairs. Painstaking trial and error has led many prompt engineers to discover how to generate impressive images: in this way, it was discovered that adding "rendered with Unreal Engine" to a prompt was invaluable to generate hyperrealistic outputs. Although many such prompts are shared with the community, others are kept as a closely guarded secret. The prompt engineer also now has an opportunity to monetise their skill via websites such as *promptbase.com*, which offers a 'prompt marketplace' for buying and selling prompts for a variety of popular text-to-image generators including SD.

Skill with prompt engineering begins with an understanding that the dataset comprises scraped image+caption pairs of very diverse origin and hence prompting with a word such as "beautiful" is highly ambiguous: in the dataset, it might have referred to a variety of images such as the human face, a landscape, flowers, or a painting. Hence, the model is going to have difficulty in interpreting the exact usage that the prompter had in mind – an alternative approach might be to add a negative weighting to "ugly" instead. Likewise, there are difficulties with subtleties of language and idioms: "a fork in the road" might easily end up generating images of a culinary item lying on asphalt; "Pikachu on a skateboard" might result in an image of a skateboard with a Pikachu graphic imprinted on it. Help is at hand with deriving the most accurate text prompt to generate a particular desired outcome: prompt matrices have been created showing grids of generated images with the same core prompt combined with different descriptive prompts, and methods have been developed to interrogate the CLIP model in reverse by submitting an image and discovering how CLIP describes it.

It may already be said that in the field of text-to-image art, the term 'artist' has been superseded by the 'prompt engineer'. In the summer of 2022, Jason Allen used the *Midjourney* text-to-image software to win the digital art section of the Colorado State Fair art competition with an image entitled *Théâtre d'Opéra Spatial*. This resulted in significant antipathy from others in the artistic community who claimed that Allen was not an artist and little more than a cheat. Allen was quoted in an article by Roose for the New York Times (Roose, 2022) as saying that "art is dead, dude. It's over. A.I. won. Humans lost". The argument here is that text-to-image is simply a new creative tool that starts with a human idea, and hours of skill and trial and error are required for a prompt engineer to generate images that represent

that idea in eye-catching ways. Although this ar-gument implies that time and effort expended on perfecting a prompt equates to the quality of artistic endeavour, it can reasonably be claimed that imagination and ingenuity is still required to generate striking imagery from a prompt just as it would be from a pencil or a paintbrush.

Conclusions

The experiments with the River Daugava detailed above reveal the potential inaccuracy of the *Stable Diffusion* model to represent a very specific real-life subject when compared with a purpose-trained GAN. Outputs from the model can be misleading because, although they appear realistic, many elements of the visual composition may not match the actual situation. At the same time, SD can decorate and embellish a basic theme to produce im-pressive results where fidelity to a specific subject is not required and it is demonstrably not just a cut-and-paste collage machine. Where text-to-image comes into its own is probably where the reproduction of known reality is not the goal: the latest text-to-image models encourage their prompters to wild flights of imaginative fancy and can transform dreams into visual realities. It becomes clear upon inspecting online galleries of imagery from text-to-image communities (such as that for *Midjourney*) that those with an interest in fantasy and sci-fi are highly productive – the use of text guidance presumably giving many non-artists the opportunity to visualise their thoughts and ideas for the first time. The ease with which a few words of text can transform within a few seconds into a totally unexpected visual representation is wonderfully empowering but can also bring accusations of trivialising the creative process.

Such is the pace of current developments in text-to-image that this article is out of date as soon as it is written. It is already possible to fine-tune the Stable Diffusion model with the addition of only a handful of images (a variety of photographs of a face, for example) and to create new prompt keywords – meaning, for example, that a user's face could be generated into the SD output. Extending text-to-image to create video sequences is already possible, although an issue with the diffusion method is that it is a frame-by-frame still-image process that lacks temporal coherence. Undoubtedly these specific shortcomings will be solved, and text-to-video will develop in its own right utilising massive scraped datasets of online videos – and text guidance of audio will inevitably follow the same development path. In other fields, there is some research into text-to-3D-shape generation (Sanghi et al., 2022), although datasets are smaller since 3D model files are less frequent online. Runway ML are currently promoting a text-guided video editor software which might be termed text-to-video-editing, and *GitHub Copilot* is already up and running using natural language guidance to assist programming in the Python language. AI-based text generation has not been discussed here but made a name for itself in late 2022 with the release of OpenAI's conversational text model entitled *ChatGPT*.

All output from text-to-image represents an Internet-centric view of the world since all image+caption pairs in the dataset have been sourced online. This opens up the generated imagery to any inherent online bias; for example, if a prompt includes the word "school-teacher", it is most often a female teacher who is portrayed. Ethical concerns are being raised about specific aspects of datasets, for example the inclusion of artwork by currently active artists whose style can be pastiched and potentially sold. Copyrighted images such as Disney characters or celebrity faces are being removed from some training datasets due to fears that future litigation will at some stage be instigated to decide the legality of us-ing particular visual imagery in the training of text-to-image neural networks.

This article has focused on creative practice, the production of visual imagery as artxwork. It is important to point out that the creative and editorial industries are already established users of

text-to-text and text-to-image, which have proved an invaluable aid to rapidly visualise new ideas to present to clients. In a matter of seconds, a striking original illustration can be generated for an article rather than using clip art or the services of an illustrator, and money can be saved by no longer employing human photographers, models and makeup artists. This raises the familiar Luddite fear that illustrators, artists and photographers will lose their jobs. Historically there has always been resistance to new technologies like photography that subsequently earn the right to be considered art forms in their own right. Despite the current accusations of cheating, triviality of effort, and appropriation, will the time come when prompt engineering will be added to the panoply of the visual arts to sit alongside painting, drawing, sculpture and photography? Are prompt engineers the artists of the future?

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Currently continuing her studies in the master's program in the new specialty of Landscape and Urban Planning. During her studies, Anna took part in various summer schools, plein airs, workshops and competitions to develop personal growth. From 2021, she works at the Faculty of Architecture as a project manager.

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Efe Duyan has been teaching at MSFAU Istanbul as Senior Lecturer Dr. since 2013 and affiliated with several universities for research or guest lectures, such as the Berlin Technical University, Ca' Foscari University, the University of Minnesota, Istanbul Technical University, Georgia State University in Atlanta, the University of Iowa, Washington University in St. Louis, George Washington University, and the University of Massachusetts Boston.

His fields of research are contemporary design, critical design perspectives, architectural theory, Early Modern history, and Eastern Mediterranean architecture. He is internationally recognized poet, culture promoter and working at RISEBA FAD since 2021.

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Irem Hâfız is a research assistant and a PhD candidate in the Department of Architecture at Middle East Technical University (METU), Ankara. Her doctorate research is currently on an ontological inquiry and a critical aesthetic discussion of form/ation in the contemporary computational field of architecture. Her theoretical research interest is on the edge between architecture and philosophy.
In 2017, İrem received a master degree in Architecture at METU, after her graduation from Abant İzzet Baysal University, Bolu in 2013. She has taken part in numerous design studios, workshops, exhibitions, and some other architectural events either as a part of teaching staff or as a participant/student so far.

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ANDREA CONTURSI

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Andrea Contursi is Italian architect, received his PhD in 2011 at the Bauhaus University about city planning in Berlin after 1945 (Scharoun and the "Planungskollektiv"). Department of town and regional planning. Since 2014 Andrea works as an freelance architect and researcher. His list of achievements includes work on several projects, competitions, articles and a monograph (2018).

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Chris has exhibited a variety of interactive film installations dating back to ARTEC'95 in Japan via Future Cinema at ZKM in 2003 to the Glucksman Gallery in Cork in 2019. Part of his enquiry is the use of novel or unusual interface technology including A.I. techniques (such as facial emotion recognition) and brain-computer interfaces. He has investigated group interaction with the 'Cause & Effect' interactive filmshow (2003–2012), designed for audiences in cinemas. He has published numerous academic articles and carried out empirical research in Prague to discover the forgotten secrets of the world's first interactive film (1967), entitled Kinoautomat. Chris obtained his PhD with the dissertation "Rethinking the Interactive Movie" in 2006 and has held lecturing appointments at the University of the West of England (Bristol), the Slade School of Fine Art, Central Saint Martins and SMARTlab (University College Dublin), and he has run hundreds of workshops related to experimental filmmaking and interactivity as a freelance visiting lecturer. In 2020, he was appointed as Assistant Professor at RISEBA and is Creative Director of the practice-led PhD launched jointly in 2021 by RISEBA and Liepaja University.

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Aigars Ceplitis is a lead researcher at the Faculty of Media and Creative Technologies, RISEBA, where he also teaches film editing and 360° 3D spherical cinema film narratology. A graduate of CalArts, he has formerly served as an editor and assistant to the established Hollywood director Randal Kleiser and has headed a programme of film and video for disadvantaged children of Los Angeles. Aigars holds an M.F.A. in film from California Institute of the Arts and a B.A. in art history from Lawrence University. He is also an artistic director of RISEBA Repertory Theater.

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VOYCE SABRINA DURLING-JONES

Bachelor of Art, Communications
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Voyce Sabrina Durling-Jones received her undergraduate degree in Communication from the University of New Orleans and has studied in graduate film and anthropology programs in Australia and Chile. She has spent over a decade teaching filmmaking to Canadian First Nations in Alberta and British Columbia, focusing specifically on using filmmaking to preserve language and culture. Sabrina is currently completing an MA in New Media and Audiovisual Art and will begin PhD studies at RISEBA in 2022.

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ELLEN PEARLMAN

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Ellen Pearlman is a new media artist, curator, critic and educator. She is a Senior Research Assistant Professor at the Faculty of Media and Creative Technologies at RISEBA University, a Visiting Research Scholar at the NYU Tandon School of Engineering, a Fulbright Scholar at the Department of Mathematics and Informatics at the University of Warsaw, and a MIT Research Fellow.

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About RISEBA University

RISEBA University of Business, Arts and Technology in Riga, Latvia, is a private university with more than 30 years of experience, offering its students contemporary and high-quality education. RISEBA is an interdisciplinary and multicultural private higher education institution fully accredited by the Ministry of Education and Science of the Republic of Latvia.

As one of the first private higher education institutions in Latvia, RISEBA is now among the 10 largest higher education institutions in Latvia (both public and private) with almost 3000 students, including 200 international students, who attend more than 20 study programmes of different levels and directions, and more than 9000 alumni. Since its foundation in 1992, the mission of RISEBA has been "to be a gateway to international careers".

The university facilitates the development of creative personalities, preparing students and graduates for entrepreneurial careers at the international level, offering a wide range of undergraduate and postgraduate business and creative programmes as well as doctoral studies. In the last decade RISEBA has opened studies in communication, audiovisual media arts and architecture, thus transforming the institution into a place where "business meets art".

RISEBA stands out with its clear international focus and is distinguished by the exclusivity of the study programmes offered and variety of languages of instruction. The programmes are taught in Latvian, English and Russian, with both full and part-time tracks.

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Photo: RISEBA FAD

About the Faculty of Architecture and Design

RISEBA University's Faculty of Architecture and Design was established in 2011 and offers architecture studies in international settings in Latvia in two successive cycles – the Bachelor's Programme in Architecture (3.5 years, 210 ECTS) and the Professional Master's Programme in Architecture (2 years, 120 ECTS). Since its foundation the faculty has combined the best architecture education standards and teaching experience in Europe in pursuit of academic excellence and international recognition. Both programmes are fully accredited by the Ministry of Education and Science of the Republic of Latvia.

The Bachelor's Degree of Engineering Sciences in Architecture is the first step in preparing students for further studies in the fields of architecture and urban planning and professional architectural practice.

In 2017 RISEBA University established the 2-year Professional Master's Programme in Architecture; thus, the total length of architecture studies at RISEBA comprises 330 ECTS or 5.5 full-time study years, meeting the general requirements of EU standards for practicing the architectural profession.

The aim of the programmes is to provide students with the theoretical knowledge, practical skills and necessary competences to work in the field of architecture, design and urban planning. During studies students advance their abilities in analytical thinking and problem solving and acquire the research skills to approach design tasks in a variety of contexts and to work out concepts while being socially responsible young professionals.

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Photo: RISEBA FAD

About the Faculty of Media and Creative Technologies

The Faculty of Media and Creative Technologies offers bachelor's and master's programmes designed to produce highly qualified, competent and competitive audiovisual specialists and develop a new type of entrepreneur who can achieve a symbiosis of business and creative thinking.

The Bachelor's Programme in Audiovisual Media Arts is targeted at young people with comprehensive secondary education and those who want to attain a professional qualification in the field of audiovisual media arts related to television, Internet media, cinema and new media. The Bachelor's Programme offers a well-balanced mix of theory, methods and practice in the audiovisual field and is supported by the latest technology and advanced equipment. Study courses are taught in Latvian, Russian and English.

The Master's Programme offers in-depth training in new media and audiovisual arts. Alongside the traditional practices of directing and cinematography, students apply more innovative forms, such as arts research, interactive 2D and 3D production, sound design, experimental fine arts, performance studies, extended and virtual reality, 360° video production, culture analytics, and data visualization. The programme is implemented in collaboration with Liepaja University. The Master's Programme offers four majors: Audiovisual Media Arts, Multimedia Performance Art, Digital Art and Sound Art and Electronic Music.

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Photo: RISEBA AVMM

About ADAMarts

ADAMarts is a double-blind peer-reviewed academic journal dedicated to architecture, design and audiovisual media arts from the Baltic Sea region, published once a year by RISEBA University, both in print and online. *ADAMarts* aims to bring together leading academic scientists, researchers, scholars and practitioners from around the world.

ADAMarts encourages a variety of approaches to the urban phenomenon – from urban planning to architecture, design and digital media. We are interested in papers reviewing the connections between various countries and cultures of the Baltic region. We invite submission of articles based on theoretical investigations, design research and alternative exploration on the following topics:

- Architecture and interior design – design theory research, education and practice, exhibition architecture, crowd management planning, design of the interior environment, design innovations for aging, coloured exterior and interior lighting, environmental psychology and other related topics;
- Planning – urban planning and development, urban affairs, planning education & research, innovative planning programmes and techniques, preserving large landscapes, planning & environmental law, public budgeting and finance and other related topics;
- Audiovisual media arts – digital media design, art practices in global digital culture, immersive experiences in virtual space, film, television, and new media in the post-digital era, audiovisual strategies on portable platforms and social media, 360° cinematography and production, 3D stereoscopic film production in community-mediated environments, producing in local and international markets, audiovisual media branding and niche marketing, animation and CG integration in audiovisual settings, multimedia performing arts, video installation and net art, game design and ludology theories, narratology in film and media and other related topics;
- Any topics from the related fields of design, production and consumption.

The first edition of *ADAMarts* was published in 2018. Further contributions and papers will be welcome from academicians, post-graduate students, architects, designers, planners, media artists, anthropologists, historians, psychologists, sociologists or others interested in the fields named above.

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Photo: RISEBA FAD

ADAMarts Volume 2

ADAMarts is a collection of articles reviewing the connections between different countries and cultures, especially of the Baltic region. Texts included in *ADAMarts* are invited through a public call for papers. Only original papers that have not been previously published may be selected for publication.

Submission of articles:

Proposals are welcome from academicians, post-graduate students, architects, designers, planners, media artists, anthropologists, historians, psychologists, sociologists or others interested in interior design at any level in the fields named above.

The paper should not exceed 8000 characters and should include a title, an abstract and keywords in English. Illustrations (up to 10 for articles and up to 3 for reviews) should be submitted in TIFF, JPG or PDF format (resolution at least 300 dpi in the final size). Copyright of images should be cleared by the author of the article prior to submission.
A full list of captions should be given at the end of the article or review. For reference formatting, the Harvard system should be used.

If the paper fulfils the requirements, including those of the journal's editorial guidelines (provided in the respective call for papers), it is double-blind peer reviewed. All evaluators are external and anonymous.

Publication ethics:

The journal adheres to the guidelines stated in the 'Principles of Transparency and Best Practice in Scholarly Publishing' by COPE (Committee on Publication Ethics). It follows the spirit of the principles in all aspects of its publishing operation. We expect all authors to adhere to the ethical standards as prescribed by the Committee on Publication Ethics.

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