SPECULATIVE URBAN FUTURES:
FIVE DESIGN APPROACHES

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PUBLISHER
Arts Academy,
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ISBN
978-953-6617-82-1

PRINTING & BINDING
Kerschoffset, Croatia, 2026

PRINT RUN
1500

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Agence Erasmus+ France / Education Formation. Neither the European Union nor the granting authority can be held responsible for them.

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surfutures.eu

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INTRODUCTION

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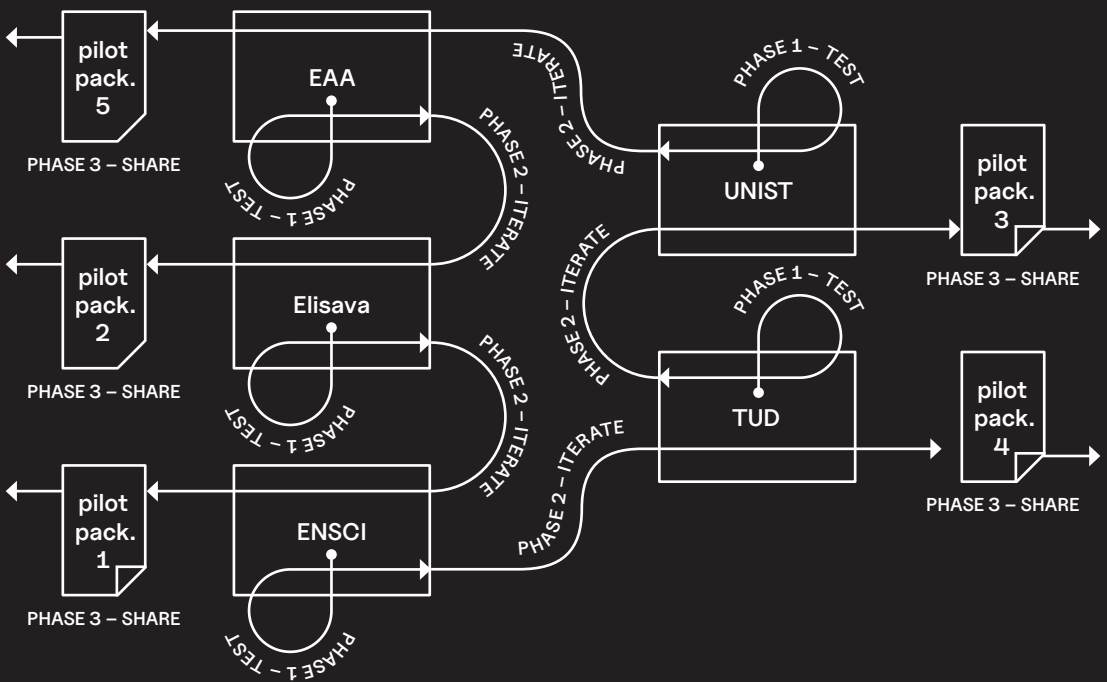

fig. 1.
Diagram presenting overall approach.

In early nineteenth-century Britain, the limitations of its national aesthetic sensibilities were becoming increasingly apparent. In response, a Parliamentary Select Committee on Art and Manufactures was created. Part Two of the resulting inquiry described its clear agenda: to define "the best means of extending among the people, especially the manufacturing classes, a knowledge of and a taste for art" (House of Commons 1835). To meet this end, two key initiatives were launched: the establishment of the Government Schools of Design in 1837, tasked with creating a meaningful alliance between art and industry, and the opening of free public galleries and museums throughout the country in order to improve the taste of the British public so that they would appreciate (and consume) the new industrial objects produced by designers trained at the Schools of Design. The ideas underpinning the Design Reform Movement were largely taken up across Europe, providing a "theoretical foundation for numerous designers and artistic enterprises at the very end of the nineteenth century and into the early decades of the twentieth, including C. R. Ashbee, Charles Rennie Mackintosh, Peter Behrens and the Werkbund, the Wiener Werkstätte, and the Bauhaus" (Oshinsky 2006), as well as other movements such as Modernisme in Catalonia. Responding to divergent design ethics and political ambitions, these reform movements were united by a central pedagogical project—to integrate design into the logic of industrial production and to cultivate a shared standard of "good design" grounded in form, function, and taste. This pedagogical foundation, however, rested on a relatively narrow framework that privileged formal coherence, efficiency, and alignment with industrial and market logics, often at the expense of broader social, environmental, and ethical concerns.

While design's positive contribution to the project of modernisation is undeniable, it could be argued that many of today's environmental challenges constitute a "problem by and of design"

(Dilnot 2021). One of the downsides of reproducing design practices and educational paradigms derived from inherited models, without critically interrogating their valence in contemporary situations, is the replication of the extractive logic underpinning modern design. In the Anthropocene, human-centred approaches perpetuate many of the negative processes based on this logic, including the extraction and depletion of resources, ineffective techno-solutionism, and unbalanced manufacturing, production, and distribution systems. As a result, design becomes complicit in questionable practices, including rapid object obsolescence, the exploitation of closed systems, and the proliferation of a culture of non-repairability.

Alongside the tangible limitations of contemporary design practice is the more existential crisis caused by the end of what may be described as the modernist linear version of time, in which time flows neatly from the past, via the present, to the future. Mark Fisher (via Simon Reynolds) calls this situation "dyschronia," as historical progression becomes disrupted—haunted by futures that failed to materialise and stunted by a lack of cultural and political imagination (Fisher 2022). This raises fundamental questions about our particular world model: how we represent and render it, how we adapt to or challenge it, and, importantly, how we may dare and care to imagine and speculate about other possible, plausible, potential, and preferred worlds grounded in difference by means of novel design methods. Addressing such challenges is the key aim of speculative design.

SpeculativeEdu (Mitrović et al. 2021), an Erasmus+ project conducted between 2018 and 2021 that laid the foundation for Speculative Urban Futures (SUrF), sought to map the "state of the art" in speculative design practice through interviews, case studies, and essays. In its conclusion, the project underscored the pedagogical potential of speculative design, arguing that:

> "As a pedagogical tool, speculative design—at its best—opens students' minds to brave new worlds: to critical and creative interventions, transgression and change, as well as the possibility of applying design principles and tools in very different contexts and types of projects. The speculative approach allows students to develop a set of tools and a language for understanding the consequences of their design practice. It is particularly stimulating as an educational tool because it foregrounds criticism, self-reflection, and a move away from familiar practices."

By looking at universities as speculative sites for experimentation and the testing of new forms of thinking and making, SUrF builds on SpeculativeEdu by shifting its focus more explicitly towards pedagogy as a means of moving beyond the status quo and extending design practice towards more desirable and viable futures (Mitrović and Vanette 2025). Just as the British government in the nineteenth century recognised the limitations of design in the face of a rapidly changing landscape, the deeply troubled conditions of the present call for a renewed reformation—beginning with education.

ABOUT SURF

Speculative Urban Futures (SUrF, KA220-HED-BA603E17) is a three-year Erasmus+ Cooperation partnerships in higher education project that brings together a network of European institutions working across design practice, education, and research. The project focuses on strengthening design education by building on existing knowledge and developing new pedagogical approaches attuned to contemporary challenges. It is led by ENSCI les Ateliers (France), in collaboration with Elisava Barcelona School of Design and Engineering (Catalonia, Spain), University of Split (Croatia), Delft University of Technology (Netherlands), and the Estonian Association of Architects (Estonia).

THE DESIGN BRIEF

SUrF follows the premise that it is in and through education that contemporary design reform becomes possible. This entails a rethinking of design pedagogy through the development of new methods and epistemologies, as well as their transmission and dissemination. To this end, SUrF has produced five distinct design briefs that encompass all the educational materials required to replicate each course in other academic, civic, and corporate contexts.

The choice of the brief as a pedagogical format is deliberate. While it typically sits at the core of design education, its conventional use has contributed to the normalisation of a limited mode of practice. As Jones and Askland (2012) observe, the brief is "used to help the designer to understand the problem by defining the objectives and parameters of the project towards generating the most appropriate solution." For Tim Brown, the executive chair of the global design consultancy IDEO, the brief is "a set of mental constraints that gives the project team a framework from which to begin, benchmarks by which they can measure progress, and a set of objectives to be realized: price point, available technology, market segment, and so on" (Brown 2009).

From an educational perspective, however, the brief has an additional purpose: it structures the learning objectives of students, and, as such, it commonly focuses on practical skills (e.g., making, drawing, form-giving). Therefore, the brief typically aligns with the type of design being taught and the skills and tools that relate to that specific subject. In its conventional form, a student brief tends to: 1) describe a problem; 2) provide guidelines, boundaries, or references; and 3) hint at a desired outcome. A good brief leaves ample room for experimentation. Of particular relevance are the critical observations on the design brief made by Colombi and Nocek in the aptly named paper "Design Heresy: The Problem of the Brief" (2024), where they write:

> "The design brief is often shaped by established norms and values, framing problems in ways that align with dominant societal groups. This framing encourages a positivistic approach and assumes that design should move towards a single 'right' solution for a better world. However, this perspective disregards the complexity and diversity of our contemporary world and overlooks how the brief is itself a normalizing process in design."

Building on the arguments made in "Design Heresy," we ask: Could the brief be reimagined as a way to proliferate design imaginaries and outcomes, encouraging students to examine design in its broader contexts, unpack uncritically accepted frameworks, propose and explore alternatives, and prototype emergent realities? The aim is to reframe the brief as a (critical) design outcome rather than a (given) design prompt. The careful (and possibly iterative) construction of the design question in the form of a brief should be understood as a crucial stage of the design process. This approach emphasises problem framing over problem solving and aims to avoid the linear learning process that usually follows the launch of a brief. In summary:

- The brief commonly acts to reduce the scope and role of design by introducing artificial limits and boundaries. Space must be provided for students to explore, expose, and transcend these limits. This is a key challenge of design education.
- The brief should facilitate radical forms of design by opening up degrees of freedom from conventional expectations and constraints. It can do so in diverse ways, such as using "what if" questions, chance operations, deviant methods, absurd practices, nested temporalities, metapolitics, and multiple worlds.
- The opening of limitations and related freedoms still demands rigour and a degree of constraint. Designing speculatively does not equate to being free of boundary conditions or disciplinary, methodological, or thematic frameworks, but rather incorporates them critically with a view to expanding design's methods and outcomes. There is a method to non-normativity.
- Designing speculatively is also not gratuitous, self-indulgent, or niche. Speculation can be practical, efficient, and actionable. By not being obsessed with conventionally imposed notions of design agency, however, it dismantles hegemonic notions of practicality and efficiency.
- Traditional briefs typically follow a modernist linear passage of time—from describing a problem to finding a solution. This assumes that, for a positive design outcome, the problem is well-framed and articulated, yet this assumption may itself be flawed. The brief must embrace problems in their full systemic complexity. In this sense, a well-framed and presented exposé of the problem can also be a positive outcome.
- The brief should take students out of their comfort zones (but in a carefully managed manner)—specifically in relation to knowledge, practice, and expected outcomes. This demands finding novel ways of filling the gaps and broadening expectations.
- Gaps are often filled by talking to those with pertinent knowledge or experience of the subject. As design problems and practice become increasingly complex, collaboration becomes a key factor—the brief can direct students towards diverse experts and crucial sources of information.
- The brief should welcome chance, serendipity, wild cards, and any interruptions to linear thinking and decision-making. There is always something to learn when one is not fully in control.
- All of the above points demand that the brief engages new forms of designing-with-others, challenging traditional forms of authorship and the power dynamics they sustain. It is a form of collective political action.

DELIVERABLES

This book presents outcomes of the SUrF project. Instead of proposing universal solutions or totalising visions of the future of design pedagogy, SUrF has focused on developing a flexible and open toolkit of approaches in the form of design briefs, adaptable across academic, civic, and professional contexts. Working between the small scale and the systemic, the project developed, tested, and shared a series of pedagogical tools to help foster the conditions needed to achieve reforms and meaningful changes necessary to align design with some of the demands and challenges of the twenty-first century. In the book, we present five outcomes, comprising work from teams from five European institutions: ENS Paris-Saclay/ENSCI les Ateliers, Paris; ELISAVA, Barcelona; Arts Academy, University of Split; Faculty of Architecture, TU Delft; and The Estonian Association of Architects, Tallinn. The perspectives presented emerge from specific European institutional and cultural contexts and offer partial, situated contributions to ongoing, plural conversations shaping design pedagogy.

APPROACH 1: COUNTERFACTUAL HISTORIES

Counterfactual Histories use the technique of modifying the outcome of a historical event and then extrapolating a new version of history leading to an alternative present. The basic promise of counterfactual histories, especially as applied to design pedagogy, is to break out of constraining lineages and narrow pathways through the imagining of alternative narratives and the application of alternative values. Such speculative proposals question existing paradigms through the use of different ideologies from those currently directing product development. These are speculations on how things could be, had different choices been made in previous times.

APPROACH 2: SITUATION ROOMS

The Situation Room approach uses play and game-based practices to proliferate urban imaginaries. Using the basic tenets of play—a specific space and time, a series of (factual and self-imposed) constraints, and chance—situation rooms generate a temporary heterotopic condition conducive to radical exploration. This approach combines pragmatism with speculation and playfulness with rigour, harnessing lateral thinking, viscerality, and chance to develop robust design practices that support life-affirming, critical, and transformative forms of worldmaking.

APPROACH 3: COMMUNITIES AND FUTURES

The Communities and Futures approach addresses future implications of major global shifts (technological, economic, political, and environmental) in local contexts through speculative and futures-oriented design practice with the aim of engaging local communities through a range of possible future scenarios. Multidisciplinary workshops have proven particularly generative for this practice, introducing alternative educational models that move beyond slower, more constrained curriculum-based academic programs, cultivating students' social imagination and their collective capacity to think otherwise.

APPROACH 4: SENSING-INTUITING-IMAGING

The Sensing-Intuiting-Imaging (SII) approach focuses on the production of speculative and intuitive problematisations. These speculations require both the formation of new sensibilities and the creation of new forms capable of expressing their potential. These forms could be called *images*, but following a non-representational approach that does not reduce them to shapes, outlines, or the tracing thereof. These images are open to an untapped affective potential that provides not only an account of "what has been" but can also invent "what is to come." SII follows Gilbert Simondon and his ontology of images, a pluralistic account of images in what he calls the *imagistic cycle*.

APPROACH 5: SEMIOSPHERE AND IMAGOSPHERE

Semiosphere explores the potential of AI beyond the mere production of images and words. Designers have for a long time speculated on alternative configurations of systems such as political or economic ones, but so far these have remained mostly hypothetical and largely untestable—raising the question of how such design methodologies might be integrated with system modelling techniques to facilitate the interpretation and prototyping of complex situations and scenarios. A further objective was to formulate hypotheses concerning the future of design, not in opposition to established techniques (technical drawing, physical prototyping, CAD) or novel technologies (BIM, digital twins, AI), but rather through the synergistic integration of these methodologies, thereby unveiling novel approaches to design practice that will catalyse ecological, social, and economic transitions.

SHARING AND FEEDBACK

All of the materials created during the SUrF project are free to download. The full PDF packages are available on the following website: https://surfutures.eu/.

Following the open education format, we embrace feedback, suggestions for improvement, and examples of design work that have resulted from the implementation of the briefs. Please stay in touch with us via: contact@surfutures.eu.

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DURATION

The approach is divided into three phases. It can be adapted for short workshops but ideally runs for between four and eight weeks.

STUDENT LEVEL

Master’s and above

ENSCI

COUNTERFACTUAL HISTORIES AND ALTERNATIVE PRESENTS

James Auger Lorène Picard
Emile De Visscher Céline Chip

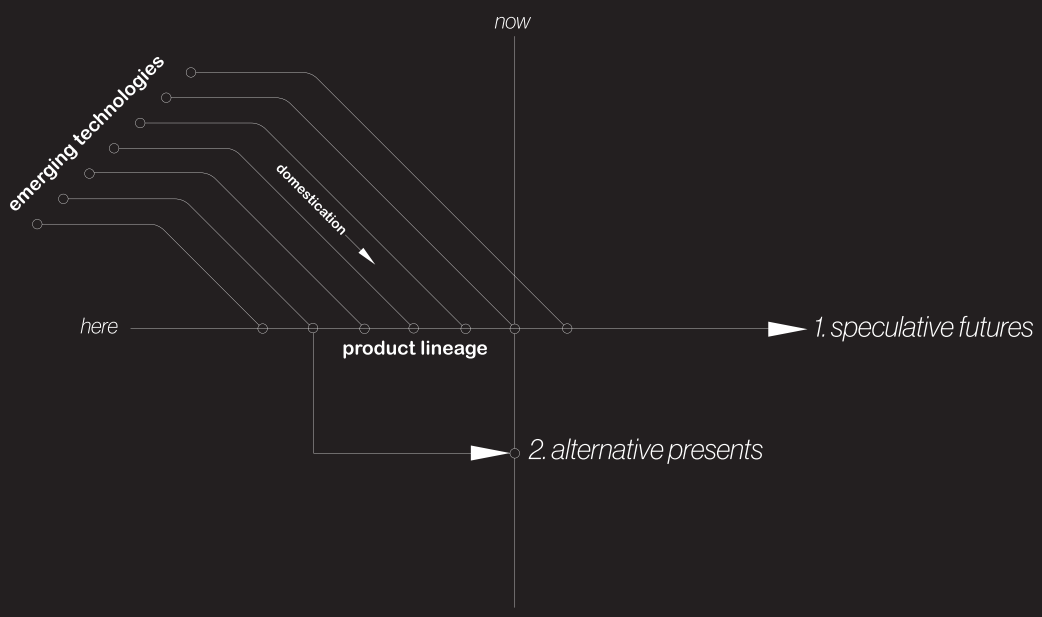

fig. 1.
Alternative presents and speculative futures. The technology on the left side represents laboratory research – the higher the line the more emergent the technology. As we move into the future on the right-hand side, speculative designs exist as projections of the lineage. Counterfactuals or alternative presents, on the other hand, step outside the lineage at some relevant point in the past to reimagine our present.
Courtesy of James Auger.

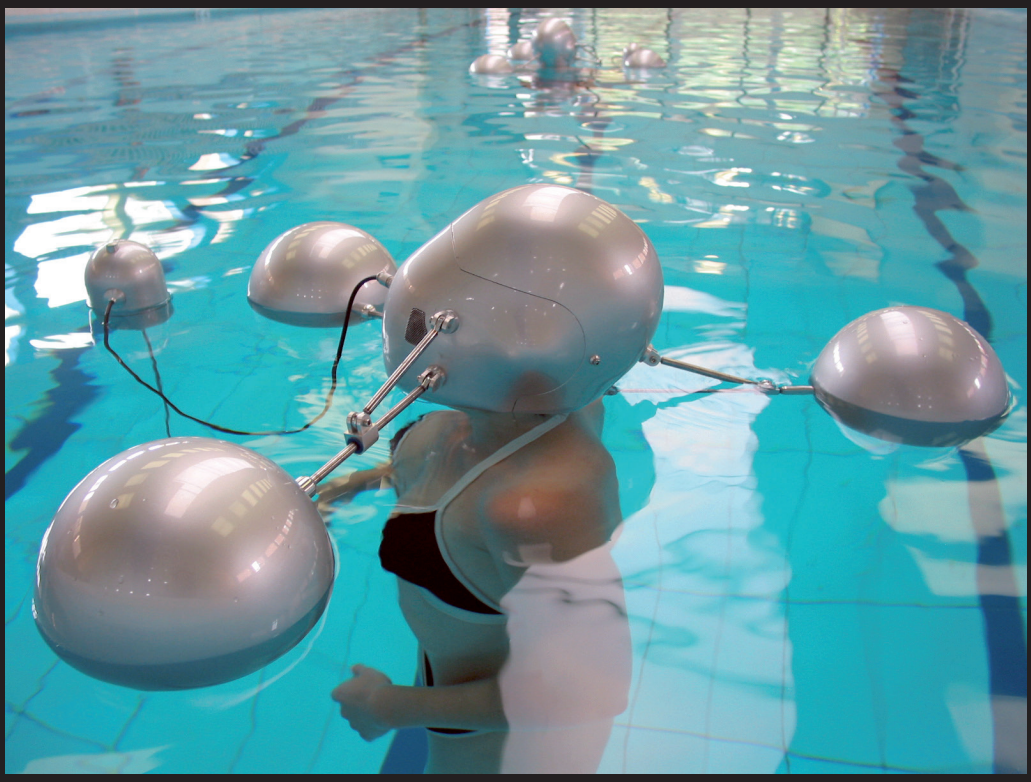

fig. 2.
The Iso-phone is a telecommunications concept providing a service that can be described simply as a meeting of the telephone and the isolation tank. By blocking out peripheral sensory stimulation and distraction, the Iso-phone creates a telephonic space of heightened purity and focus. Courtesy of James Auger and Jimmy Loizeau.

Introduction

Counterfactual Histories is a practice-based approach to research and pedagogy that facilitates a re-formulation of design through the application of literary devices such as alternative histories and speculative fiction. It seeks to cultivate new ways of designing informed by oppositional ideologies, processes, and motivations.

As Ursula K. Le Guin—one of the most influential creators of alternative fictional worlds—observed: "Imaginative fiction trains people to be aware that there are other ways to do things and other ways to be. That there is not just one civilisation and it is good and it is the way we have to be" (Curry 2018). Throughout her work, Le Guin explored social and political alternatives, using fiction not only to imagine different worlds but also to cast a critical eye on the assumptions and structures of the status quo.

Background: Towards the Building of Other Worlds

The BBC World Service recently asked listeners worldwide: "Which part of history would you change?" A wide range of crowdsourced counterfactuals (reversing legacies of colonial rule, erasing national borders, even altering influential literary texts) were gathered from respondents, with aims such as reducing inequality, preventing conflict and avoidable tragedies, and so on (BBC 2022). The exercise illustrates both the growing popularity of counterfactual histories and the way in which they represent a safe space for exploring hypothetical alternatives—not to undo the past, but to help us think beyond the narrow pathways we have inherited in order to create better futures.

Counterfactuals have a long and diverse history across many cultures. They often turn on political or military events, such as a different election outcome (Franklin Roosevelt being defeated

in 1940 in Philip Roth's *The Plot Against America* [2004]) or the outcome of a war (the victory of the Axis Powers in Philip K. Dick's *The Man in the High Castle* [1962]). Sometimes history is "flipped" in a prolonged "what if" thought experiment, as in Malorie Blackman's novel series *Noughts and Crosses* (2001–), in which Europe has been colonised by Africa. They may also serve a pedagogical purpose by revealing the path of a life unloved or unlived, as in Charles Dickens' *A Christmas Carol* (1853) and Frank Capra's film *It's a Wonderful Life* (1946). Imaginaries based on a poignant counterfactual history can offer thought-provoking insights and perspectives on contemporary life as well as an examination of the past. Since history is "often written by the victors, it tends to 'crush the unfulfilled potential of the past,' as Walter Benjamin so aptly put it. By giving a voice to the 'losers' of history, the counterfactual approach allows for a reversal of perspectives" (Deluermoz and Singaravélou 2021, 49).

This then is the basic premise, and promise, of counterfactual histories especially as applied to design pedagogy—to break out of constraining lineages and narrow pathways through the creation of new narratives and the application of alternative values. Such speculative proposals "question existing paradigms through the use of different ideologies to those currently directing product development. These are speculations on how things could be, had different choices been made in previous times" (Auger 2012) (fig. 1).

Approach: Counterfactuals in Design

Counterfactuals have previously been used under the guise of speculative design. One very early example is Auger-Loizeau's Iso-phone (2003) (fig. 2). Developed during the fast-growth period of the mobile telephone, the project imagined an alternative lineage for telecommunication using the cancellation of Sir Giles Gilbert Scott's famous red British telephone box as the bifurcation moment. Its thick walls and glass acted to dislocate the caller from the noise of the outside world, in turn creating a neutral space that facilitated a focus on the phone conversation. The Iso-phone took this notion several stages further through the use of sensory deprivation theory. The resulting telephone prioritised the quality and immersive nature of the experience and acted to question the increasingly dominant lineage of the "always on, always available, always distracted" mobile phone experience.

Counterfactuals Applied to Design Education

Counterfactuals offer a subtle yet powerful means of combining design theory with practice. Through rigorous historical analysis of a given subject, designers can identify elements that appear problematic when reassessed through a contemporary lens. This approach reveals dominant power structures and the ways they shape design culture and its evaluative metrics—for example, the pervasive influence of legacy systems and the attention economy, and the extent to which these frameworks restrict imagination and limit possibility.

How, then, might we teach design differently? The counterfactual approach proposes a series of key steps. The design brief is structured as follows:

- Definition of the theme or subject, followed by a broad mapping of its related systems (for example, economic, political, cultural, technological), followed by a historical examination to create a detailed and diverse timeline of the subject—the key moments that led to the current world (for example, a political decision, an invention, a celebrity endorsement, a natural disaster). These can then be critically analysed to identify the key event(s) that contributed to the problematic contemporary situation.
- The creation of a counterfactual timeline based on a different outcome of an event identified on the real timeline. One of the key benefits of this approach is the necessity to understand complex histories and how they inform or influence design practice. Students are encouraged to experiment with different themes and explore the potential consequences of the alternative history. The further back in time the counterfactual moment, the more divergent the alternative present will be, and therefore more fictional and complicated to manage—as Ray Bradbury's classic tale "A Sound of Thunder" illustrates (Bradbury 2005).
- The design of things along the new timeline: hypothetical products, advertising campaigns, images, texts—evidence of the new value system in action. In a longer project, this can culminate in well-rendered imaginaries of an alternative present.

DELIVERABLES

- One historical timeline that relates to the research subject.
- One counterfactual timeline launched from a chosen event on the historical timeline.
- Design of material evidence that could exist along the counterfactual timeline (posters, products, etc.).
- A short text of 2,000 words explaining the research problem and counterfactual solution.

PROCESS

PHASE 1 Project launch (30% project duration)

- Presentation of the brief and objectives of the workshop.
- Presentation of the schedule and the different steps.
- Students define their research subject (typically a critical contemporary starting point).
- Examination of the related issues (in relation to design)—for example, questions of resources, production, ethical issues, political agendas, etc.

Exploring and documenting the theme

- Research the key historical events that led to the problematic present—the outcome of an election, a patent that was ignored, or a celebrity endorsement.
- Document this history and begin developing a factual timeline.

Research and communication

- Continued development of the timeline. This is a creative exercise—the timeline could be animated, three-dimensional, 20 m long... Consider how to highlight the key moments.
- Formal presentation of the timeline.

First Evaluation

Historical timeline. Share with the group a brief overview of the original timeline.

PHASE 2 Choose a counterfactual moment (20% project duration)

- Reflect on the counterfactual moment(s). Counterfactual histories commonly use "what if? "questions, for example: What if digitisation never happened? Then explore the consequences (40+ years of development into analogue technologies?) Start asking "what if?" questions along your factual timeline.

Deadline

Affirm your chosen path. Formalise the counterfactual timeline identifying the key moments (that can align with or be influenced by real events). Identify design opportunities along the timeline for concepts and evidence from the new history.

PHASE 3 Development / prototyping (50% project duration)

- Work on design proposals—these can align with your design interest (products, textiles, ceramics, graphic objects—posters, archives, websites—etc.)

FINAL PRESENTATION

Individual presentations of counterfactual projects. Describe your creative process, critical stance, and how you used the concept of the counterfactual to express critical thought.

CONCLUSION: THEORY INTO ACTION

One unexpected result of the workshop was the counterfactual timeline as an approach to the archive. The writer of historical fiction, Hilary Mantel, made some poetic observations on the paucity of our recorded history during her Reith series of lectures (2017):

> "Evidence is always partial. Facts are not truth, though they are part of it – information is not knowledge. And history is not the past – it is the method we have evolved of organizing our ignorance of the past. It's the record of what's left on the record. It's the plan of the positions taken, when we stop the dance to note them down. It's what's left in the sieve when the centuries have run through it – a few stones, scraps of writing, scraps of cloth. It is no more 'the past' than a birth certificate is a birth, or a script is a performance, or a map is a journey. It is the multiplication of the evidence of fallible and biased witnesses, combined with incomplete accounts of actions not fully understood by the people who performed them. It's no more than the best we can do, and often it falls short of that."

As Karen Barad has argued, "the past is never closed, never finished once and for all" (Barad 2010, 264). Therefore, it is fruitful to challenge "rhetorical forms that presume actors move along trajectories across a stage of spacetime (often called history)" (240). "Queering time" — bending the straight line of technological progress, questioning causality and linearity, and countering hegemonic conceptions of time (such as traditional archival practices) in order to open up new possibilities and discover alternative realities—is one way to constructively deploy counterfactual histories in design education.

Design's history—predominantly white, male, Western, and so on—enforces a very narrow scope of possibility of what and who is celebrated, and by extension what and who has the power to determine "future histories" (to borrow another term from speculative fiction). This history also dictates a narrowed scope in terms of how designed artefacts are evaluated. To take an obvious example, Dieter Rams' (1976) spare, functional ten principles of "good design" exert an outsized influence as a metric for the evaluation of all contemporary designed artefacts. Here perhaps is the most vital use of counterfactuals in design, and their most valuable contribution to design education: to allow different paths to emerge that were drowned out by the dominant or "standard" narrative(s). Conjuring into being or simply recognising alternative histories can open up valuable future paths, and create space for rich new possibilities and new imaginaries to flourish.

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CASE STUDY #1

Moteur=Chaleur

STUDENT
Juliette Oulié

CONTEXT, AIMS, AND SCOPE

Counterfactual Histories was run as a 140-hour project with 30 participants representing a mix of bachelor's and master's students from ENSCI Les Ateliers and ENS Paris-Saclay. The project used the counterfactual as a way of developing new imaginaries for urban energy futures.

PROCESS

Juliette Oulié's project begins in 1911 with the drilling of a potash well in Wittenheim, a commune in the Haut-Rhin department of northeastern France. Oulié asks what if instead of potash, the French authorities had taken the opportunity to dig a geothermal well?

The project was motivated by the observation that electricity constitutes the dominant form of domestic energy consumption in France. This prompted an investigation into the historical trajectory that produced this contemporary condition, beginning with the so-called "energy wars" of the late nineteenth century. Nikola Tesla's development of alternating current ultimately prevailed over Thomas Edison's direct current system, largely because alternating current enabled the construction of large-scale power stations in rural locations and the transmission of electricity across vast distances through radial grid networks.

As electricity became established as the primary solution to energy distribution, its vast infrastructural apparatus gradually receded from view. Today, it appears to arrive almost magically through sockets embedded in domestic walls. These sockets—and the plugs designed to fit them—quietly determine the design, functionality, and material configuration of nearly all contemporary household products. The project's counterfactual divergence begins in 1911 with the construction of the first geothermal power plant in Larderello, Italy. In the same year, the Théodore well was drilled in Wittenheim for the extraction of potash. Oulié speculates on an alternative scenario in which this well was drilled slightly deeper to harness geothermal heat instead. From this speculative shift unfolds a different model of urban development. With the arrival of the mines, the town's architecture evolves to cluster housing more densely around the workplace, enabling the direct distribution of heat rather than its conversion into electricity.

Over time, this gives rise to a distinct thermal infrastructure—one that supplies not only heating to local dwellings but also powers a range of steam-driven domestic technologies.

The subject of legacy infrastructure—and its constraining effect on design practice—makes it particularly suited to a counterfactual approach. Decisions taken more than a century ago continue to shape not only how energy is generated and distributed, but also the range of energy paradigms available to designers developing artefacts for domestic environments.

In this scenario, selecting an alternative trajectory in 1911 would have enabled the emergence of fundamentally different relationships to energy—relationships that are less abstracted and dislocated, and instead more tangible, immediate, and materially present. Such a shift would also have fostered the development of a new category of domestic devices operating in direct response to their surrounding energy ecology.

At a moment defined by the energy crisis—both geopolitical and environmental—projects of this kind open up the possibility of radically reimagining the energy landscape. They move beyond incremental or surface-level adaptations within the dominant additive system (such as smart metering), instead proposing structural and systemic alternatives.

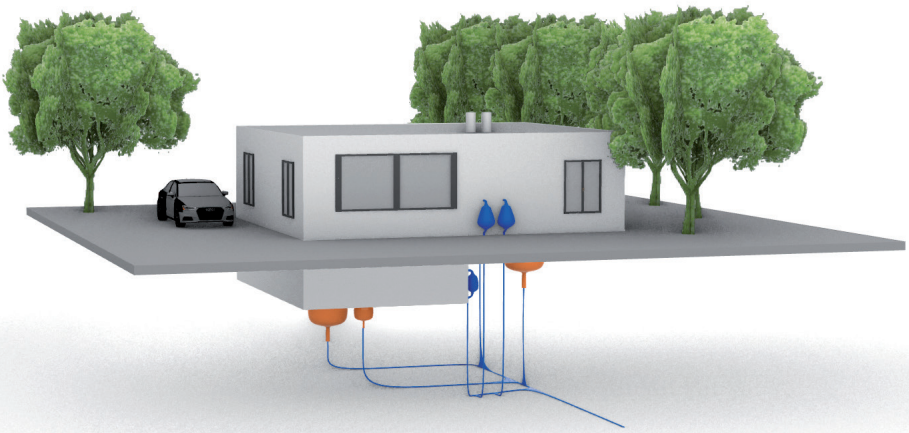


fig. 3.
Geothermal house.
Courtesy of Juliette Oulié.

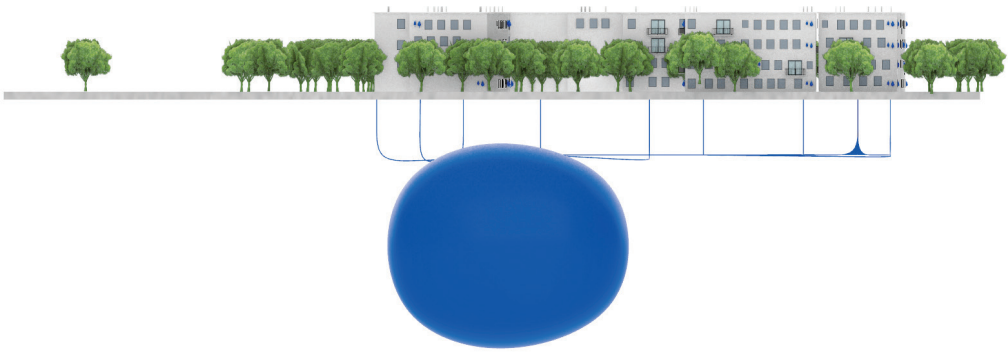


fig. 4.
Geothermal housing block.
Courtesy of Juliette Oulié.

Another Kind of Smart-Home

STUDENT
Valentin Graillat

CONTEXT, AIMS, AND SCOPE

Valentin Graillat is a PhD student at the Centre de Recherche en Design, a laboratory hosted by ENSCI Les Ateliers and the École Normale Supérieure Paris-Saclay (ENS). Graillat began using the Counterfactual Histories approach during his master's degree at ENS, continuing its development into the PhD. The project uses the counterfactual as a way of developing new imaginaries for the smart home.

The smart home is a technological dream that has its origins in the push-button futures of the mid-twentieth century. Smart, in this case, represents automation, comfort, and efficiency—a vision of progress in the domestic context. In the context of today's ecological crisis, the smart home has somehow managed to sustain its ideal of a better future. In other words, this future unfolds less as a response to present challenges than as a continuation of past dreams.

At the heart of this research lies a reflection on the "smartness" of a home guided by the nostalgic values of yesterday's future. More broadly, the thesis addresses the following question: How do sociotechnical imaginaries shape technological development? Using the domestic environment and its "smart" future as a field of study, Graillat explores two histories: first, the factual timeline that led to the current identity of smartness, and second, the counterfactual history, developing a different version of smart.

PROCESS

Why Our Homes Will Never Become Smart

The genesis of the "smart-home" concept can be traced back to the 1930s–1950s in the United States. Commissioned by the hegemonic companies of their time (Disney, Monsanto, General Electric), "houses of the future" flourished and spread through exhibitions, installations, fairs, promotional films, and TV series. These imaginary homes, full of robot servants and gadgets, popularised the utopia of the labour-saving technological home. Exaggeratedly futuristic and spectacular, the houses of the future primarily aimed to stimulate the consumption of new domestic appliances. In the long term, however, these imaginaries shaped our expectations for the future. Yesterday's houses of tomorrow crystallised a value system that guided domestic technological developments and continues to inform technological research today: the pursuit of greater automation, comfort, entertainment, and protection from the outside world. With the emergence of technological concepts such as ubicomp, "calm

tech," and the IoT, the smart home gradually emerges as the continuous updating of a retro-type, hermetically sealed home, maintained in spite of growing environmental considerations.

Description

The counterfactual approach consists of altering history as we know it in order to imagine the bifurcations that might have occurred. Applied to the field of design and technology, the counterfactual approach makes it possible to conceive objects as witnesses of an alternative reality. Graillat's counterfactual begins with the 1973 oil crisis—a pivotal moment situated after the advent of computation yet prior to the major breakthroughs in domestic computing. Re-examining a technological concept such as the smart home from the vantage point of 1973 allows for the introduction of the question of energy supply, and consequently, a re-negotiation of its value system.

The project is structured aound an alternative narrative following the election of President Jimmy Carter in 1977. The National Energy Act (1978) and the Energy Security Act (1980) were signed. In their wake, a policy of large-scale investment brought visibility to the still little-known renewable energy sector. With the support of businesses and scientific institutions of the time, this ambitious energy policy opened the way toward a new model of the "house of the future," powered entirely by biomass energy: the symbiotic house.

The technological realisation of the smart home, which began in the mid-1980s, would then have radically integrated alternative research such as that of the Farallones Institute in Berkeley, whose objective was to develop appropriate technologies (e.g., using biogas) in the domestic field. With support from the large companies that dominated the technological sector at the time, a different version of smart would have emerged - less sensor/computation and more aligned with natural systems and habitats. Graillat's project speculates that the domestic technologies developed in this context would have allowed the inhabitants of residential and urban areas to produce energy on a domestic scale through co-existing with living organisms present in their environment.

REFLECTIONS

Questioning the notion of "smartness" in relation to technology, through the factual history of the twentieth century, reveals the underlying value systems that shaped technological change during modernity. Jasanoff and Kim's concept of the Sociotechnical Imaginary (STI) is particularly useful here, as it captures not only a society's entrenched shared values—the often invisible forces that guide choices and transformations—but also collective visions of what scientific and technological developments might bring in the future. In Derrida's terms, the automated futures imagined in the 1950s continue to haunt the present, providing a tangible and optimised goal toward which technologists still orient their work. A counterfactual approach is therefore pertinent, as it can disrupt the historical narratives that sustain these stagnant dreams and open space for rethinking "smartness" in ways that better correspond to contemporary conditions.

Suburban vision of the "Nested House"
Symbiotic House Institute, 1977.

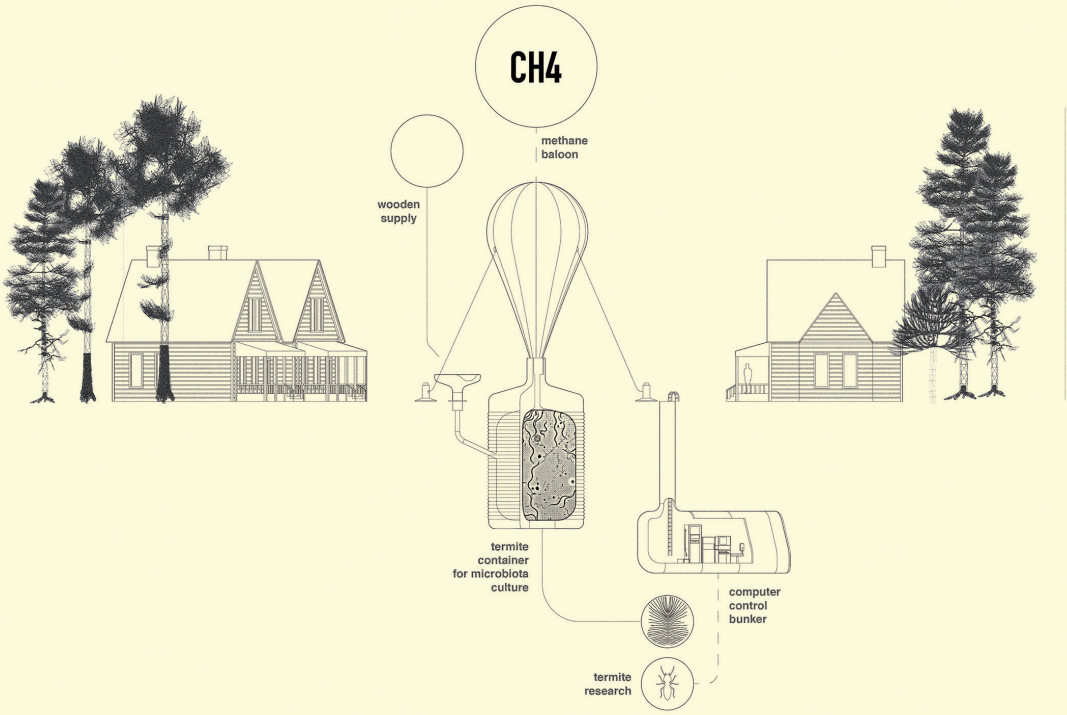


fig. 5.
The Nested House. Following a series of major termite infestations on the West Coast of the United States, the SHI launched an experimental project called the “Nested House” (more commonly known as the “Termite House”). It envisioned a home powered by a termite colony, turning this pest into its primary source of energy.
Courtesy of Valentin Graillat.

DURATION

The approach is divided into three phases: research, game, and proposals. It can be adapted for short workshops or longer periods (such as final thesis projects) but ideally runs for four to eight weeks. The duration of each phase may vary, and the phases may be conducted by either the same or different student groups.

STUDENT LEVEL

Last year undergraduate, master's and above, young practitioners.

ELISAVA

SITUATION ROOMS

Roger Paez Manuela Valtchanova
Toni Montes Mar Gené
Lorna Mulero Cristina Sanuy
Eloi Sànchez

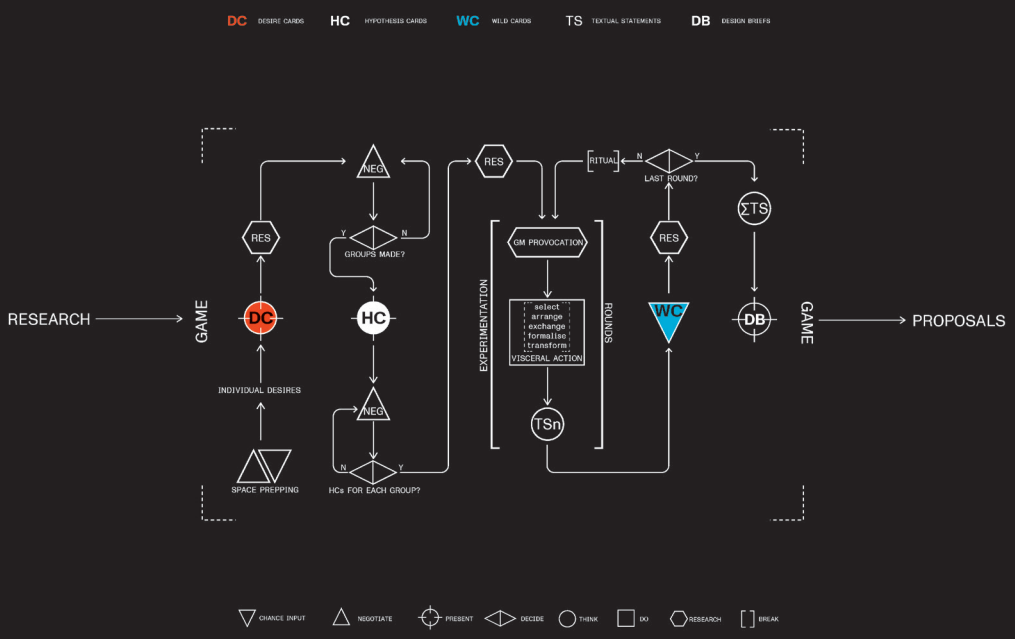
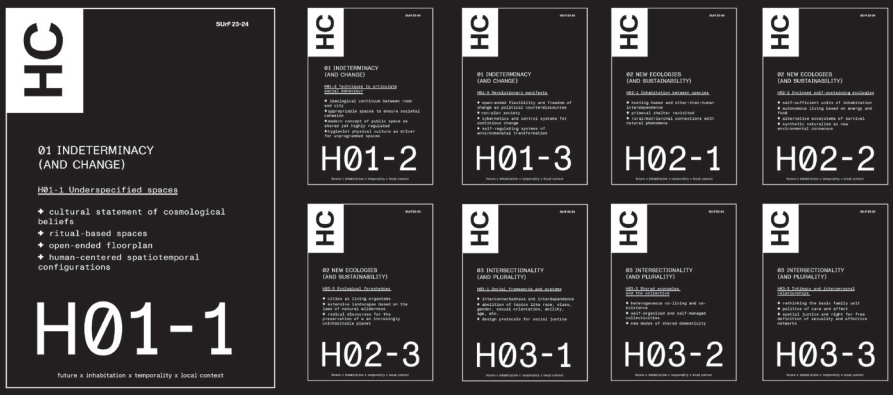


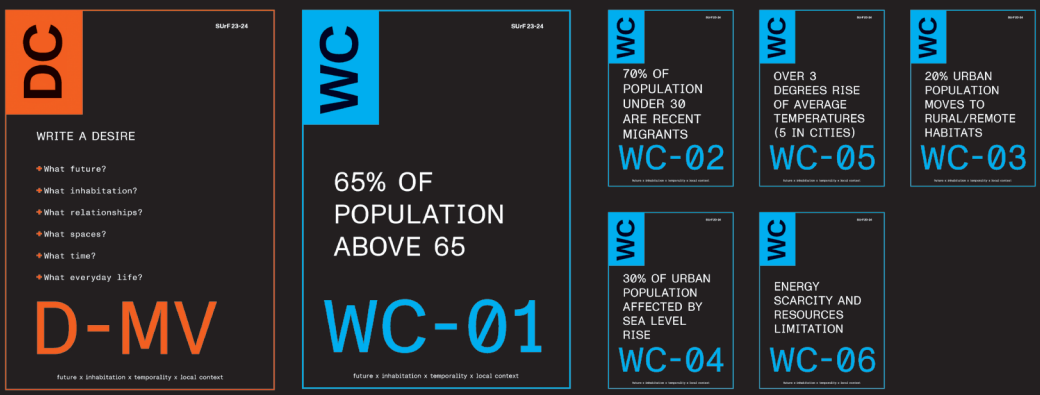
fig. 1.
Situation Rooms Diagram.
Courtesy of Roger Paez and Manuela Valtchanova.

HC Hypothesis cards



DC Desire cards

WC Wild cards



future x inhabitation x temporality x local context

fig. 2.

Hypothesis cards, Desire cards, and Wild cards.
Courtesy of Roger Paez and Manuela Valtchanova.

Introduction

Simply stated, situation rooms use play and game-based practices to proliferate imaginaries. Using the basic tenets of play – a specific space and time, a series of (factual and self-imposed) constraints, and chance – situation rooms generate a temporary heterotopic condition conducive to exploration.

Situation rooms, and play and games in general, have a long history of being used in arts and design. Critical theory has consistently construed play as a necessary condition for the generation of culture and as a crucial process in human cognitive development. Since the trailblazing work of Johan Huizinga, pioneering authors have definitively disconnected play and games from their traditional association with frivolous or inconsequential activity. Following the spirit of these authors (if not always their statements), we claim that play is so relevant that it should be conceived as a way of relating to the world rather than a subset of "childish" activities that can be isolated and treated accordingly.

Other fundamental aspects notwithstanding, we are particularly interested in the generative value of play: play may be used as a way of transforming reality. We can understand play as addressing three basic themes: limits, self, and chance. These refer, respectively, to the way we construe an understandable order of the world (how we establish physical, temporal, and normative limits to define a specific subset of actionable reality in order to deal with it), the way we construe ourselves (how we construct our own selves in relation to others), and the way we construe the unobservable or hidden forces of reality (how we deal with asubjective agencies). Play, then, simultaneously addresses the objective, subjective, and asubjective realms. This threefold capacity of play to define limits, test and expand the self, and address chance makes it a perfect ally for

all design-based disciplines, whose primary aim is to transform our world, imagining and projecting other realities. The relationship between play and design is a very strong one, and one worth exploring in a radical way. Indeed, thanks to their simultaneously regulated and exploratory nature, games and play can be harnessed to fuel the disruptive capacities of design.

An expanded notion of play holds incredible potential for design. We can summarise the contribution of play to design in three concepts that mirror the triad of play's pursuits: constraints (facilitating an exploratory use of factual or self-imposed constraints); engagement (prompting new types of engagement and authorship); and chance (creatively embracing chance). Coupling pragmatic efficacy with visionary criticality, combining its role as a solution provider and as a problematizing practice, game-based design can further its relevance as a practice that simultaneously contributes to proposing solutions and posing questions that help address significant societal, technical, and cultural issues.

Within the array of playful and game-based formats, situation rooms hold a special position. Situation rooms were first used for military purposes, and their format derives from the need to address emergencies. What characterises a situation room is a heightened sense of heterotopia, resulting from the definition of a self-contained space where all information comes together, an intense timeframe, chance (or unpredictable) inputs that force rapid decision-making, as well as a multivocal structure that nonetheless needs to provide a single response.

There are three key phases in the situation room approach: Research, Game, and Proposals. First, research serves to define the main challenges and hypotheses inherent in the chosen topic; it encompasses the definition of the context (physical, social, and cultural), and the preparation of research booklets and cards for playing the game. The second, and most relevant, phase involves executing the game in a situation room setting. This fosters lateral thinking to explore novel ways of addressing design opportunities associated with the chosen topic and context, distilling them into design briefs with the potential to trigger positive changes in the present. The final phase centres on the development of (urban, architectural, design) proposals, which respond to the design briefs generated in the Game phase. The main objective of the proposals is to explore, envision, and assess future urban scenarios, thereby expanding design practices in the present.

To summarise, situation rooms use play and game-based practices to proliferate imaginaries. This deceptively simple formulation captures a profound shift in how design, pedagogy, and speculation may relate to one another. Situation rooms are not merely collaborative environments, nor are they reducible to creative workshops or ideation techniques. They are carefully staged epistemic devices that reorganise the conditions under which realities, present and future, may be imagined, negotiated, and constructed.

This approach examines the generative potential of situation rooms through two distinct yet methodologically aligned pedagogical configurations: the Speculative Urban Futures Final Degree Projects (SurF TFG) initiative and the Future of Inhabitation sequence, developed as a multi-agent collaboration environment. While differing in structure, duration, and

academic articulation, both cases demonstrate how speculative, game-based methodologies reorganise design cognition and the construction of complex situated questions. SUrF TFG emphasises divergence, enabling multiplicity, cross-scalar experimentation, and strong collective cross-pollination. In contrast, Future of Inhabitation operates as a distributed epistemic system structured across three interdependent courses enacted by different academic actors. Here, situation rooms function not only as generators of imaginaries but also as mechanisms for iterative knowledge circulation, by virtue of which design briefs, design outcomes, artifacts, and interpretations evolve through successive transformations. Considered together, the two cases reveal the methodological elasticity of situation rooms and their capacity to sustain both exploratory proliferation and critical elaboration within speculative design pedagogy.

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CASE STUDY #1

SUrF Final Degree Projects

CONTEXT, AIMS, AND SCOPE

The Speculative Urban Futures Final Degree Projects (SUrF TFG, Elisava UVic-UCC) initiative was conceived to address future urban challenges by using speculative design approaches enacted in the present. The program's central premise rejects the treatment of the future as a predictable horizon. Instead, uncertainty, ambiguity, and complexity are mobilised as generative design materials. Fiction, storytelling, scenario writing, and game formats become tools for constructing alternative frameworks of inquiry.

The pedagogical structure unfolds across three stages, responding to the phases described above: Scenario Pollination (research), Definition of Design Briefs (game), and Development of Design Proposals (proposals). Each phase performs a distinct epistemic function, and the situation room serves as the critical hinge within the sequence.

PROCESS

Scenario Pollination: Explorative Expansion

The process begins with the collaborative construction of speculative scenarios. Participants generate an open-ended index of explorations with no pressure toward immediate resolution, based on affective annotations, visceral reactions, spontaneous (often contradictory) ideas, narratives, etc. The aim is the proliferation of conceptual and imaginative material capable of destabilising habitual design assumptions.

This deliberate suspension of coherence is essential. Conventional design processes often rush toward defining a problem, prematurely narrowing the field of inquiry. Scenario Pollination reverses this logic. It foregrounds viscerality and affectivity, allowing unexpected associations and latent concerns to surface. In this phase, two different approaches are applied.

The first approach is based on a collective generative writing practice designed to destabilise habitual thinking about the future by using systematic recombination. Participants construct two repositories in a shared document: (Im)Possible Futures, a list of concepts drawn from cultural references (books, comics, films, podcasts, etc.), and Intimate Presents, composed of situated fragments from everyday life. This shared textual space is crucial; all contributions coexist and remain accessible to every participant in the same .xcl document, which acts simultaneously as a combinatory device and a plane of consistency.

The second approach of Scenario Pollination operates through a structured yet open-ended collective protocol sustained over approximately 60 consecutive days, where the Speculative Urban Futures blog functions as the shared production environment and final repository. The blog acts as a living

document of distributed imagination; it currently comprises 662 entries, evidencing the cumulative and iterative nature of the process. Each day, every participant generates at least two protocolised inputs using multiformat media (text, audio, video, image, etc.). Each contribution follows a minimal rule set: three tags and a title combining a personal code with a conceptual briefing, ensuring rhythmic continuity while preserving semantic openness. Parallel to the production of inputs, participants engage in random(ised) dialogues, responding to or recombining at least two inputs created by others. Because all entries coexist within the same evolving blog structure, the approach produces continuous cross-pollinations between imaginaries, perspectives, and layers of authorship. Individual contributions are constantly recontextualised by collective interaction, turning speculation into an emergent, relational system rather than an isolated creative act.

Through rule-based randomisation, elements from both repositories are continuously paired to produce narrative seeds. Because all participants work within the same evolving document, the process generates cross-pollinations across multiple levels of authorship. Individual imaginaries are constantly recontextualised by the presence of others' concepts, dissolving rigid boundaries between personal and collective production. Scenarios no longer emerge as isolated creations but as relational constructs shaped by shared cognitive and narrative ecologies. The approach thus amplifies divergence, fosters unexpected associations, and transforms authorship into a distributed, dynamic process that feeds the subsequent development of design briefs.

Definition of Design Briefs: The Situation Room

The transition to the situation room marks a decisive shift. Tutors and students enter a bounded spatial and temporal environment structured by constraints, chance, and a game-based logic.

Each participant proposes multiple design briefs, based on visceral combinations between different inputs from the collective repositories described above. The situation room operates as the critical hinge within this sequence. It transforms dispersed narrative explorations into operative design trajectories, enabling a shift from speculative proliferation to project formulation, zeroing in on a concrete design challenge while aiming to preserve the openness of the exploratory phase. Actors (students and teachers) are "locked" into a shared spatial and temporal frame, temporarily reconfiguring pedagogical hierarchies and redistributing authority. The room is not defined by physical enclosure alone but by a set of operational rules that organise interaction through three interdependent forces: constraints, chance, and play.

Development of Design Proposals: First-Person Speculation

Following the situation room, the Development of Design Proposals radicalises subjectivity through direct action and first-person methodologies. Students inhabit and embody speculative positions rather than analysing contexts from a distance. Dérives, embodied iterative interventions, obsessive prototyping, performative processes, etc., are just some of the methods used, seeking to build on experiential practice and embodied knowledge rather than linear logics of conventional

sequential research. A Final Exhibition/Event articulates this personal journey in a shared space and makes it public. Rather than merely presenting finalised solutions, the exhibition functions as a site of confrontation between speculative constructs and social interpretation. The final exhibition/event for all the projects is organised collaboratively, establishing a common foundation for each of the students' personal presentations.

OUTCOMES

The outcomes of the situation room are inherently plural and resist reduction to conventional design deliverables. They emerge as multiformat and multiscale interactions with complex contextual problematics, built between radical subjectivity and embodied criticism. One of the main objectives is not to produce singular answers but heterogeneous trajectories, operating simultaneously across conceptual, spatial, social, and material registers. This plurality deliberately destabilises linear problem/solution logics, allowing design propositions to take the form of narratives, protocols, performative actions, spatial constructs, cartographies, or artifacts. Scales likewise become fluid: interventions may address bodies, domestic environments, communities of proximity, infrastructural systems, or planetary ecologies without privileging any single level of resolution.

The diversity of projects emerging from SUrF TFG evidences the generative capacity of the situation room as an epistemic device, where design outcomes function less as finalised products than as exploratory world configurations that reframe how shared urban (and non-urban) realities can be perceived, questioned, and transformed. In the next section, we will briefly present some of the individual outcomes, chosen to highlight the multiplicity that results from radically subjective approaches and complex contextual and conceptual drifts.

Apex: Toolkit for the Completion of the Babel Tower (Cristina Sanuy, TFG (Elisava), 2023) stages a speculative confrontation with architectural, social, and physiological limits through the construction of a fictional vertical society (fig. 3). The project originates in cross-pollinated scenarios—including the completion of the Tower of Babel, edible materials, living food regimes, hybrid morphologies, and the reinvention of death—which suspend conventional assumptions about bodies and environments. The proposal centres on exoskeleton technologies designed to enable record-breaking heights in human towers (Catalonia's famous castells) and sustain high-altitude living. Tower life is structured through interconnected systemic "plans" addressing oxygen and water production, collective feeding protocols, climatic adaptation, fatigue reduction, hygiene, mortality, and violence. Metabolic processes are operationalised via thermoelectric mechanisms, while survival is technologically mediated through wearable infrastructures.

Drawing on Conway's *Game of Life*, the construction of human towers becomes an emergent, programmable process. Architecture shifts from a static, inanimate object to a dynamic, living system, and gravity itself is reframed as a negotiable design variable.

Homo Photosyntheticus (Jorge Cusí, TFG (Elisava), 2023) shifts attention toward metabolic and environmental relations. Imagining a future condition in which humans perform photosynthesis, the project interrogates the urban implications of sunlight accessibility. A first-person perspective investigation of personal exposure reveals a mismatch between speculative biological potentials and existing urban realities. Cartographic analyses expose how urban morphology and regulatory frameworks distribute solar access unevenly. Situationist-inspired dérives and interventions foreground sunlight as a contested urban resource, challenging its treatment as an environmental background and asserting it as a fundamental right, shaping bodily and spatial experience.

Bramando sobre Asfalto (Andrea Grau, TFG (Elisava), 2024) examines cultural persistence in the friction between rural inheritance and urban environments. Through ethnographic observations, gesture is treated as a carrier of memory, identity, and tacit knowledge, reframed as a "designation of origin" capable of mutation and continuity. The project articulates gesture across three interrelated conditions: gesture as ritual, where embodied habits reinforce a sense of belonging and tradition; gesture as resource, where the body operates as an adaptive tool through ingenuity and situated creativity; and gesture as narrative, where individual expressions take on collective and intergenerational significance.

Central to the work is the speculative reinterpretation of the dot (Catalan for dowry), displaced from a material exchange toward a symbolic transmission of knowledge, affect, and cultural resources—a "dot 2.0." This logic materialises in De Bastó (Catalan for stick or club), an experimental typography generated through rural gestures, tools, and bodily movements. The alphabet emerges as a dynamic system privileging adaptability, rhythm, and contextual responsiveness, where meaning resides as much in process as in form.

Postnatural Gardening (Anna Solano, TFG (Elisava), 2024) situates design within a crisis of imagining desirable futures marked by climate emergency, extractive economies, and social instability. Framed as an attempt to "disobey the apocalypse," the project interrogates dominant human–nature relations by focusing on companion plants: bio-artifacts genetically modified, patented, and circulated as consumer products. Rather than accepting this instrumental logic, the work explores more ethical paradigms of interspecies coexistence.

The proposal takes the form of a wearable garden that transforms human waste into nutrients, establishing metabolic reciprocity between bodies and plants. Waste is reframed as a resource, and the garment operates as a living infrastructure in which survival, care, and sustenance are distributed across human and other-than-human assemblages. Plants feed on bodily outputs while contributing to insulation, ecological support, and atmospheric exchange.

By collapsing boundaries between organism and artifact, the project challenges anthropocentric separations and foregrounds symbiosis, communal rituals, and mutual dependency as speculative models for inhabiting damaged planetary futures.

Teddy! (Núria Oriol, TFG (Elisava), 2025) interrogates regimes of memory and materialisation through a speculative artifact designed to disrupt dominant models of remembering (fig. 4). Teddy! functions as a mediating device that transforms memory from an internal cognitive act into a situated, material practice. The project is structured around a combinatorial system organised by four variables—what is monumentalised, how it is materialised, where it is located, and when it is perceived in time—generating thousands of possible configurations.

Users verbally recount a memory, which the device records and processes through AI to produce a randomised "receipt" that details specific instructions to "monumentalise" that memory. This process is posited as a call for action to intervene in urban space and to render a specific memory recognisable. Apparent mismatches, absurdities, or impractical outcomes are not treated as errors but as catalysts for reinterpretation. Rather than prescribing fixed monuments, Teddy! proposes flexible, personal forms of materialisation, foregrounding memory as an active, reconstructive process shaped by intuition, interpretation, and situated decision-making.

REFLECTIONS

Despite their differences, these SUrF TFG projects exhibit consistent methodological shifts brought about by the situation room approach. Urban questions are not treated as pre-existing problems awaiting solutions but are constructed through speculative premises that actively redefine what counts as an issue. Bodies, technologies, and environments are treated as interdependent systems, enabling proposals that cut across biological, social, and infrastructural scales. The resulting artifacts function less as solutions than as epistemic devices that probe assumptions, expose tensions, and generate new design trajectories. Fiction, central to the process, serves as a tool for reorganising present perceptions rather than producing a purely imagined narrative.

Within the SUrF TFG framework, the situation room approach primarily operates as a generator of multiplicity. The process deliberately amplifies divergence, enabling extensive experimentation across representational formats, conceptual registers, and scales of intervention. Outcomes frequently manifest as heterogeneous artifacts—narratives, maps, performative actions, spatial constructs, or devices—reflecting the methodological emphasis on exploratory breadth rather than resolution. Central to this dynamic is an intensified collective cross-pollination, in which individual imaginaries continuously interact, overlap, and recombine within shared speculative environments. The situation room thus functions as an engine for variation, destabilising disciplinary boundaries and encouraging multiscale and transdisciplinary inquiry into urban futures.

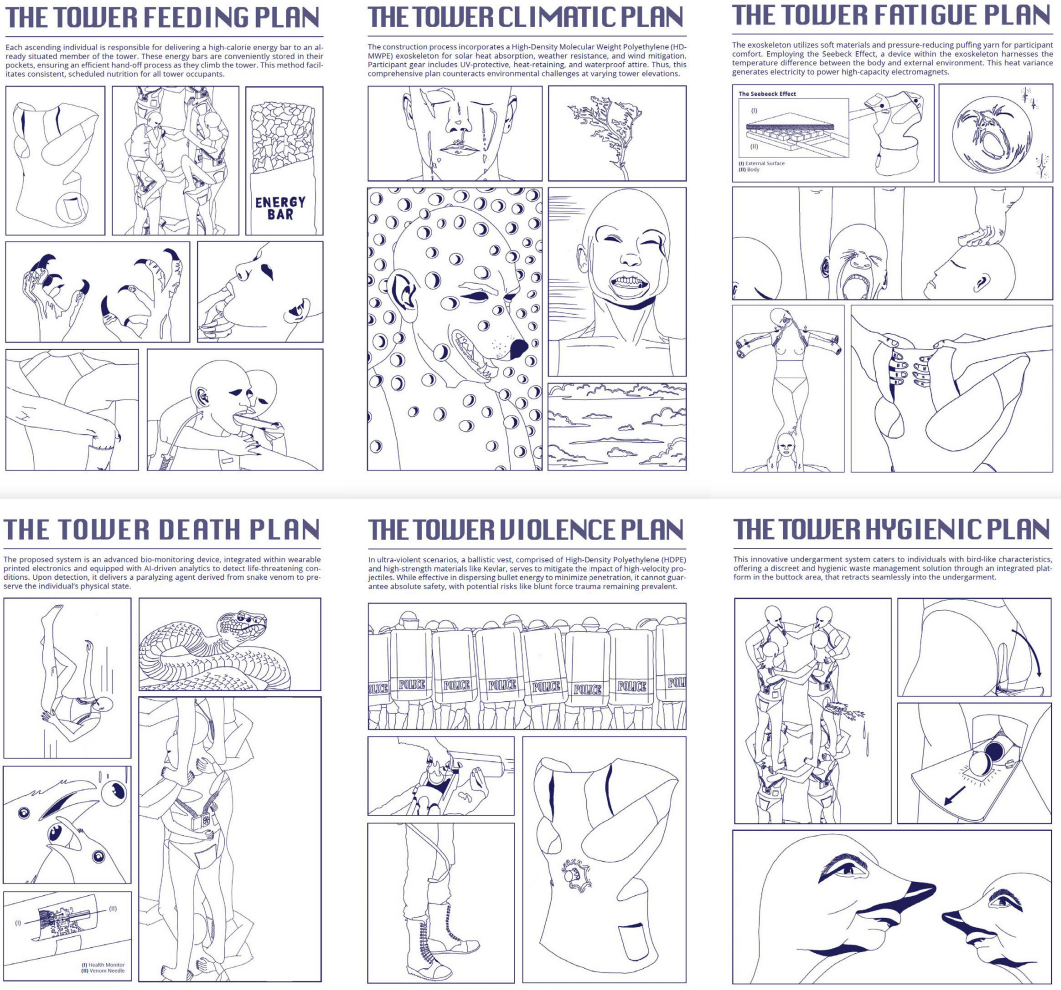

fig. 3.
Apex: Toolkit for the Completion of the Babel Tower.
Courtesy of Cristina Sanuy.

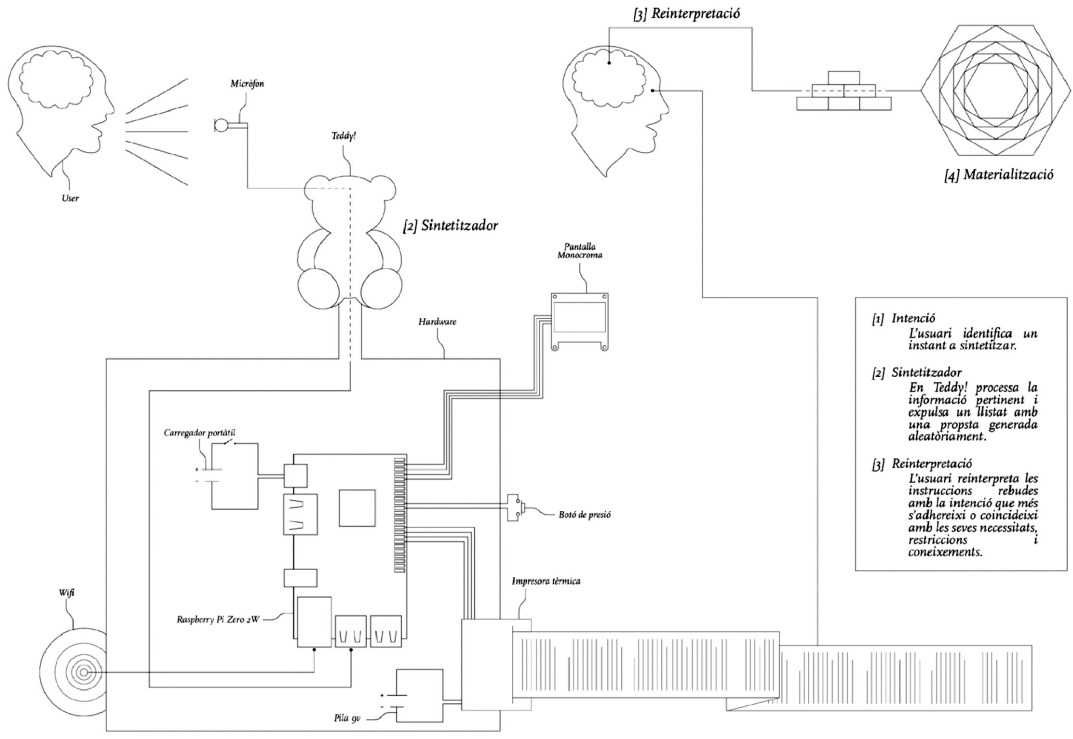

fig. 4.
Teddy!
Courtesy of Núria Oriol.

SUrF Future of Inhabitation

CONTEXT, AIMS, AND SCOPE

SUrF Future of Inhabitation was conceived as a complex environment for multi-agent collaboration, structured through three interdependent but interconnected phases, enacted by different academic actors across educational levels and institutions. Rather than a single conventional studio format, three sequential courses operated as a distributed epistemic system in which research, speculative game-based environments, and design development were deliberately decoupled and reassigned. The purpose of this initiative was to use sequential multi-agent iteration to progressively inform design outcomes.

PROCESS

In this case, the three phases of the situation room approach (Research, Game, Proposals), were conducted sequentially by different groups of students from different academic levels and at different universities. Only the core professors remained constant.

The Research phase, focused on defining challenges, hypotheses, and contexts through systematic inquiry, was developed by predoctoral researchers affiliated with Elisava Research, who established the conceptual and contextual scaffolding for the process. That effort is not discussed in detail in this text.

The subsequent Game phase, centred on the generation of design briefs through situation room experimentation, was conducted by students of the Master's program in Ephemeral Architecture and Temporary Spaces (Elisava, UVic-UCC) during an intensive four-week course, in which speculative reasoning, constraints, and chance operations structured collective inquiry (fig. 1). One of the resulting briefs is discussed in Iteration 1: New Habitats for Climate Emergency.

Finally, the Proposals phase was carried out twice, first by students from the University Master in Applied Research in Design (Elisava, UVic-UCC), and then by students from the Barcelona Unit Joint Studio (La Salle Architecture School, URL, Barcelona, and the University of Southern California School of Architecture, USC, Los Angeles). Both teams of students responded to the briefs in different educational settings, organisational structures, and time frames. Some of these results are discussed, respectively, in Iteration 2: Climate Shelters and Iteration 3: United in Scarcity. Like a relay race, this distribution of roles into sequential phases enabled iterative knowledge circulation, transforming the workshop into a multi-agent system in which ideas, authorship, and design trajectories evolved through successive reinterpretations.

The Research phase established the conceptual and contextual foundation for the workshop. Researchers investigated the core framework—future × inhabitation × temporality ×

local context—situating the inquiry within both global transformations and the specificities of Catalonia. The focus of the research was not predictive certainty or exhaustive documentation; instead, it operated as a speculative scaffold capable of sustaining multiple trajectories of interpretation. Three strategic design hypotheses provided the structure for the exploration: Indeterminacy and Change; New Ecologies and Sustainability; and Intersectionality and Plurality. Each hypothesis was formalised through concise booklets articulating conceptual frameworks, case studies, and contextual references, providing a shared yet non-prescriptive conceptual vocabulary. Systemic challenges and contextual definitions informed the creation of Wild Cards, embedding the possibility of disruption, instability, and unforeseen events within the design process.

The Game phase activated the situation room as a distinct epistemic environment. A dedicated space-time configuration was defined, deliberately separated from conventional studio routines and evaluative dynamics. This heterotopic setting privileged immersiveness, collective intuition, suspended authorship, and the generative role of randomness, error, and viscerality. Interaction was organised through three types of playing cards: Hypothesis Cards (HC), defining a conceptual direction; Desire Cards (DC), externalising individual positions and values; and Wild Cards (WC), introducing chance events to destabilise linear reasoning (fig. 2). Short presentations introduced the different imaginaries to all players, enabling the formation of affinity-based groups and the subsequent selection of design topics/challenges based on Hypothesis Cards. Contextual assignments anchored the speculation in situated realities, preventing abstraction from distancing the players from lived and material conditions.

The subsequent stage unfolded through a sequence of iterative experimental rounds designed to enrich creative inquiry through constraints, authorial displacement, and chance. Multiple rounds (R0X) of group experimentation were carried out with the aim of disrupting linear reasoning and destabilising individualistic modes of authorship, opening exploratory paths that engaged viscerality, immediacy, and intuition alongside rational and discursive forms of thinking. The findings from each round were critically interpreted and distilled into textual statements (TS0X), ensuring that intuitive productions were translated into analytical reflections. Crucially, every round built on the traces and outcomes of the preceding ones.

Each of the rounds drew on different representational techniques and cognitive registers. R01 (Image) generated negotiated image matrices and textual statements, followed by chance-based exchanges that redistributed authorship. R02(Collage) incorporated disruptive global Wild Cards and adversarial peer assessments, intensifying critical reflection. R03 (Model) translated visual constructs into rapid material assemblages shaped by constrained material quests. R04 (Diagram) reorganised outputs into relational diagrams and visual networks integrating actors, sites, and temporal narratives. The iterative oscillation between intuitive production and analytical distillation proved fundamental over the course of these rounds, allowing speculative density to coexist with conceptual clarity. Crucially, "rituals" such as collective food preparation, short, shared activities, and micro-parties, interrupted the highly formatted

rounds, punctuating the process as structured disconnections, reorganising interpersonal dynamics and reinforcing the collective dimension of the inquiry. The final stage in the Game phase distilled the accumulated material (and specifically the textual statements) into actionable design briefs, emphasising their capacity to spark further exploration rather than deliver definitive solutions.

Finally, the Proposals phase tested the methodological robustness of the framework by transferring the design briefs to participants who were not involved in the Game phase. This separation foregrounded the portability of speculative constructs, demonstrating how situation room outcomes can generate heterogeneous yet coherent responses across formats and disciplinary positions and mult-iagent interactions. The Future of Inhabitation process thus reveals situation rooms as epistemic infrastructures capable of reorganising design cognition and enabling the collective rehearsal of alternative urban futures in frameworks that are plural in terms of temporality, authorship, and disciplinarity.

OUTCOMES

In contrast to the first case study, the Future of Inhabitation tends toward an iterative deepening, channeling speculative openness into design focus and incisiveness. While retaining a plural perspective and openness, the process privileges sequential layers of development, in which ideas are repeatedly transformed, translated, and rearticulated through multi-agent interactions. Each experimental round builds upon the traces of the previous one, producing a cumulative logic akin to a relay. Knowledge and authorship circulate through cycles of exchange, disruption, and reinterpretation, enabling concepts to evolve and gain focus rather than proliferate indefinitely. Here, the situation room operates less as a generator of divergence and more as a mechanism for iterative refinement, in which multiple iterations progressively stabilise speculative propositions without overdetermining them.

ITERATION 1 **New Habitats for Climate Emergency (Diego Sanchez, Kiran Karwal, Lara Bertin, Majka Tkacikova and Rebecca Diaz, MEATS (Elisava), 2024)** is a design brief generated through the situation room approach, focused on a future scenario in which world average temperatures in cities rise five degrees. Given this climate emergency context, it is imperative to explore new modes of inhabitation to provide climatic shelters for both humans and other species and to drastically reduce the carbon footprint of our existence. This entails building new ecosystems where humans and other animal and plant species can coexist in balance, finding new ways of communal organisation to minimise energy waste by sharing resources and infrastructures, creating closed cycles for all processes related to construction, waste, food chain and water management, and giving up fuel-based mobility. The brief addresses three different scales: the basic inhabitation unit (resource-sharing and temporary adaptability of “domestic” spaces); the community of proximity (communal kitchens outside the “home” as community cores); and the urban neighbourhood (emerging urban eco-systems as semi-autonomous yet connectable systems, e.g., energy and waste).

ITERATION 2 **Climate Shelters (Mar Gené, MUEDIC (Elisava), 2024)** responds, verbatim, to the New Habitats for Climate Emergency brief, using it as a framework for speculative architectural inquiry (fig. 5). The project challenges the dominance of the urban ground plane by proposing underground spatial systems as thermally stable environments capable of passive refrigeration. Leveraging insulation from solar gains and geothermal gradients, the proposal reorganises inhabitable space through a layered sectional logic. This spatial reconfiguration triggers broader socio-cultural transformations. Distinctions between public and private domains are blurred, while programmatic and governance models are rearticulated through collective infrastructures, including shared kitchens and distributed resource hubs. Infrastructure shifts from centralised networks to decentralised systems supporting temporally dynamic communities, enabling new patterns of mobility and inhabitation. Thus, both the section of the city and its planimetric organisation are challenged. Material and spatial rearrangements go hand in hand with socio-cultural changes that have far-reaching political and organisational implications. Climate Shelters imagines radical responses to the climate emergency by tapping into a vitalist survivalism that reframes the commons as a fundamental urban dimension. Purposefully avoiding teleological techno-optimism, the project uses existing, simple, mature technologies to reimagine a city that simultaneously recognises the limits of growth and actively uses them to propose better futures, with co-responsibility and care at the core of survival.

ITERATION 3 **United in Scarcity (Ivan Moreno, Pau Butiñà, Sean Le, and Juwon Seo, BCN Unit (ETSALS+USC), 2024)** translates the conceptual premises of the New Habitats for Climate Emergency brief into a simultaneously pragmatic and radical architectural proposal (fig. 6). Addressing housing scarcity and environmental pressures in central Barcelona, the project rethinks tourism-driven urban economies through a hybrid housing model accommodating both temporary international residents and local inhabitants. Governance mechanisms redirect tourism revenues toward situated communities, challenging extractive accommodation systems. The project proposes a new type of housing that caters to both tourists and locals, functioning as rental apartments for short-term international students or professional leases and affordable transition housing for young local people. In terms of governance, this model enables the direct investment of tourism revenue in concrete, situated communities, rather than hotels, Airbnb, and other short-term accommodation systems. In terms of typology, it proposes distributed housing that combines common services concentrated in an underused church with temporarily adaptive private spaces. The church is repurposed as the access to the residential units and acts as a climate refuge and social hub, hosting shared facilities that also attract neighbouring residents, including a kitchen, laundry, meeting rooms, event spaces, a cooperative food store, workshops, and coworking areas. Private spaces are built atop adjacent buildings and integrated into structures that are accessible through the church. These strategies reduce energy dependence, reinforce insulation, introduce passive climate control, and address the climate emergency through resource sharing and collaborative ownership.

While grounded in the same methodological framework, the Future of Inhabitation sequence reveals a different operative logic of the situation room. Unlike SUrF TFG, which privileges divergence and multiplicity, this sequential format emphasises iterative transformation and progressive refinement. Urban questions evolve through speculative constructs that accumulate and reorganise prior results, allowing speculation to inform not only narratives but also concrete design outcomes.

This format intensifies distributed authorship, as ideas circulate in different academic environments, using processes of negotiation, exchange, and chance. The dynamic resembles a relay game, in which conceptual and practical momentum is collectively sustained and progressively fine-tuned. This case thus highlights the situation room's capacity to structure design as an accumulative, multi-agent process driven by recursive multi-stage elaboration, in which collectiveness and individuality, proliferation and incisiveness, abstraction and situatedness, and radicality and pragmatism all go hand in hand.

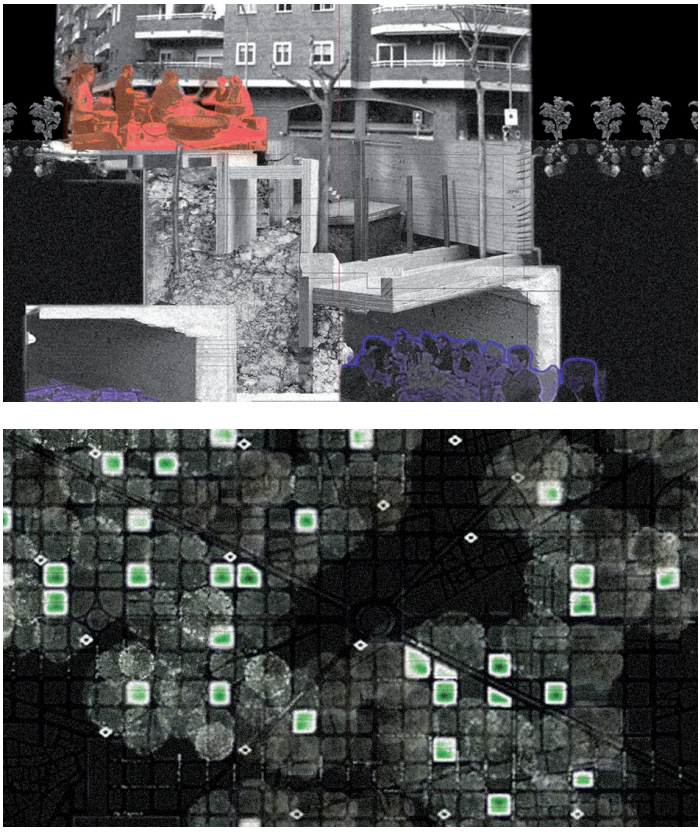

fig. 5.
Climate Shelters.
Courtesy of Mar Gené.

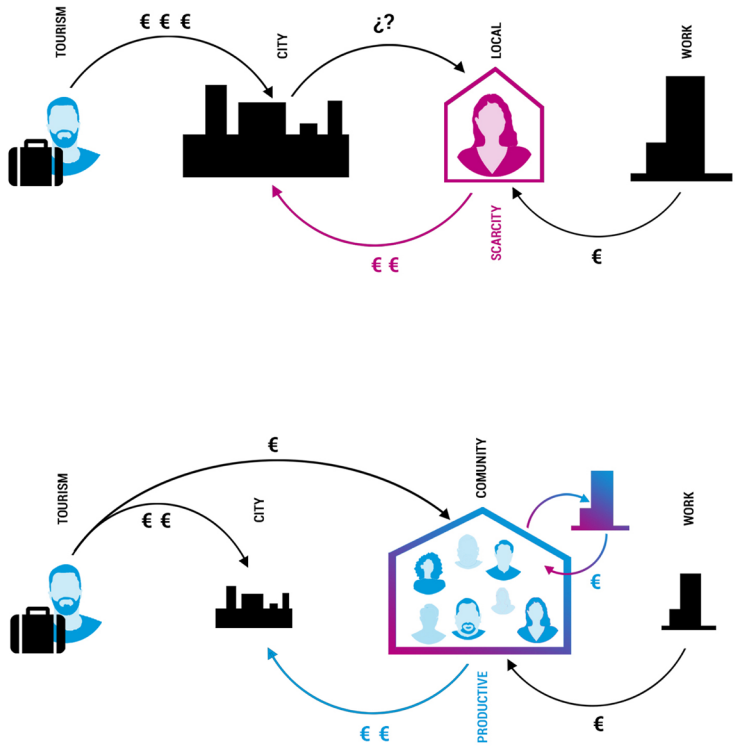

fig. 6.
United in Scarcity: design proposal to repurpose an existing city block. Courtesy of Ivan Moreno, Pau Butiñà, Sean Le, and Juwon Seo.

SYSTEM PROTOTYPE
SUB-GRID APPLICATION
REPROGRAMING LOW USE BIG BUILDINGS
STRATEGIC CIRCULATION
LANDMARKS ALONG CONNEXION PATHS
ENERGY + PRODUCTIVE COMUNITY
GRID SYSTEM APPLICATION
1 BIS PEOPLE HOUSING IN GRID DISTRIBUTION
SUB GRID SYSTEM APPLICATION
COSTING BUILDING
E. 1/500

DURATION

Master's level thesis (individual),
one semester-length project
(master's level),
workshop (3-5 days)
(master's students,
multidisciplinary teams/groups).

STUDENT LEVEL

Master's students and above,
and young practitioners.

UNIST

COMMUNITIES AND FUTURES

Ivica Mitrović Oleg Šuran
Dora Vanette

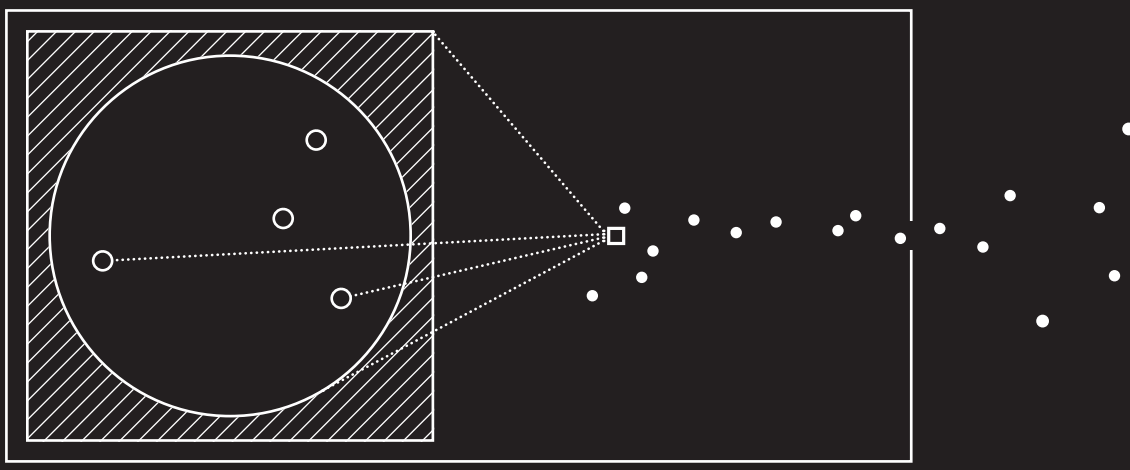

fig. 1.
Communities and Futures approach.
Courtesy of Oleg Šuran, Ivica Mitrović, and Dora Vanette.

fig. 2.
The Last Mediterranean Skipper, 2018.
Courtesy of Ivica Mitrović and Oleg Šuran.

Introduction

Even when systems fail, life goes on. The Communities and Futures approach, developed initially as the "Mediterranean Speculative Approach," addresses future implications of major global shifts (technological, economic, political, and environmental) in local contexts through speculative and futures-oriented design practice. This approach engages the local community through a shared exploration of possible future scenarios. Community members participate not merely as "consultants" but as active collaborators throughout various stages of the design process, contributing visions, scenarios, design concepts, and feedback at multiple levels of engagement.

The approach builds on established design processes, beginning with introductory lectures about the approach, followed by (1) research on a specific theme and development of a (2) future background story as a speculative narrative context for community responses, communicated through (3) designed outcomes, presented to the public and (4) evaluated in the present/real world. This process is shaken and stirred by a series of tensions, identified during the SpeculativeEdu project, which can open paths for critical reflection that leads to informed experimentation, better conceptualisation, deployment, and evaluation of not only designs, but the debates that surround them (Mitrović et al. 2021).

Given the different time scales and scopes in which these projects may unfold, ranging from a three-day workshop to a full-term project, certain compromises are unavoidable. Communities (of different types and scales) may therefore be involved in different capacities. In longer, more sustained projects, the local community should be involved as an equal partner. In shorter projects, when direct collaboration may be limited, communities should not be treated merely as abstract examples of case

studies from which responses to new conditions are extrapolated. Instead, they should also be regarded as experts and evaluators, whose perspectives meaningfully inform the work.

Multidisciplinary workshops have proven particularly generative for this practice. They use critical and speculative design as a shared platform for dialogue and collaboration among participants from varied academic backgrounds and introduce alternative educational models that move beyond slow and constrained curriculum-based academic programs. At a time when many young people are finding themselves increasingly unable to conceive of a future, let alone a preferable one, the workshops aim to cultivate their social imagination: their collective capacity to think otherwise. The approach is suited to master's-level students who bring specific skills in collaboration and managing group dynamics from their previous education. Individual master's-level projects have shown particular promise for open-ended explorations in which students assemble their own tailored set of methods, techniques, and tools, specific to the needs of each project.

This approach is best understood as an attitude or position, rather than a rigidly defined methodology. Nevertheless, certain characteristics define its basic framework. It interacts continuously with related practices, fields, and disciplines, drawing on methods, tools, and approaches that are accessible and appropriate in a given moment. These may include fictional narratives, screenplays, storyboards, user testing, interviews and questionnaires, games, or media and pop culture formats such as candid camera setups, elevator pitches, observational comedy, or stand-up.

OBJECTIVES AND EXPECTATIONS

- Definition of a theme, followed by a broad mapping of related systems and stakeholders.
- Addressing detected tensions through the creation of speculative (near-)future scenarios.
- Design of things towards (and in) those futures.
- Collaboration across different disciplines.
- Participation of local communities, people, and associations.
- Exploration of global trends through their local implications.
- Facilitation and transfer of designers' methods, tools, and techniques within local contexts.

DELIVERABLES

- 1 narrative Background Story (up to 300 words) related to a research theme.
- 1+ narrative Scenario (up to 600 words) that illustrates how people live in those futures.
- 1+ Design Concept emerging from those Scenarios (illustration, text, diagram, plot...)
- 1+ Communication Artefacts (objects, videos, illustrations, diagrams...)
- Evaluation of the project in the local context and reflections on the present.
- A short project summary and 3–5 images.

REFERENCE PROJECT

The Last Mediterranean Skipper (Ivica Mitrović and Oleg Šuran, 2018) uses a speculative design approach to address the automation of work and labor in the Mediterranean and Southeast European context. In the near future, automation is expected to result in fully autonomous cruising sailboats, fundamentally challenging all related professions. The project tells the story of "the last skipper"—once a romantic and highly valued occupation—brought to extinction by automated sailing systems (fig.2).

The scenario speculates that by 2035 all commercial sailboats will be fully automated, leading to the disappearance of the skipper profession in the Mediterranean. As a result, former skippers turn to jobs in ports such as sailboat maintenance, management, and tourism operations. Guests sail on fully automated boats, following pre-programmed routes. The project presents surveillance footage from the sailboat of the last Mediterranean skipper, who attempts to hold on to the identity and romance of the profession.

The project confronts scientific rationality with social perceptions of the skipper occupation. It is presented as an ethnographic collection (from the future), combining interviews with automation scientists and long-time skippers, speculative surveillance footage, and artefacts from the present, including non-automated boat models and archival, private-collection photographs of skippers with their guests. The project achieved broad visibility in local and national media and sparked discussion within the local community (scientists, skippers, and designers). It can be understood as a starting point for building community resilience in response to the global phenomenon of automation.

SCHEDULE: KEY STAGES

PHASE 1 (20% project duration)

- Theme: Gathering data to lay down firm grounds for the project, imagining what might happen in the near future ("what if").

PHASE 2 (20% project duration)

- Setting the stage / Background story: "What happened in the world" and detecting tensions that help to "stay with the trouble" in the process.
- Community response / Scenario: Local response to the "new normal."

PHASE 3 (50% project duration)

- Design concept: Specific stories as case studies, designing for future tensions.
- Communication: How to tell these stories to others – what are the takeaways?

PHASE 4 (10% project duration)

- Reactions/evaluations/actions: What do others think about these futures / how can we prepare for the future?

DETAILED SCHEDULE

PHASE 1 *This step consists of an inquiry into the selected theme in order to establish the foundations of the research and the project.*

The project THEME may be predefined by the workshop/course leader or it may be selected by the student. The scope can vary—from broad themes (e.g., tourism and climate change) to more focused ones (e.g., tourism and climate change → urban/public transport).

The theme should be situated within the future implications of major global shifts (technological, economic, political, and environmental), with a particular focus on the local context (periphery), away from dominant urban and technological centres. Workshop leader should discuss proposed themes both in the local context of the project site (What was? What is? What are the plans for the future?) and in the participants' own lived contexts and experiences. Participants should map the theme broadly, drawing on pop culture, design, architecture, art, and other relevant references.

PHASE 2 *This step focuses on discussing and imagining what happened in the near-future world of the project, how this world is changing, what is the main focus of change, what is the "new normal," and what are the local community responses/reactions.*

Participants/students write a future scenario based on the project THEME in the form of a BACKGROUND STORY. They speculate about probable (expected and projected) near-futures in the local context, looking approximately 20 – 30 years ahead. The local context is the place of focus—the participants' neighborhood, town, or region—where they understand how people live and how global changes might manifest in everyday life. Participants are asked to anticipate possible or forthcoming crises and their implications at the scale of the city, neighbourhood or quartier.

The background story may take the form of a short written narrative (approximately 150 – 300 words), optionally accompanied by a storyboard, diagram/map, or animation. Participants present 2 – 3 possible local futures for group discussion and select one to develop further.

Questions the background story should answer:

- Where (location, global → national → regional → local)?
- When (time frame or horizon)?
- What happened (events, transformations)?

Participants use the SpeculativeEdu tensions framework to expand and challenge early thoughts and findings, helping to sharpen the theme (Mitrović at al. 2021). Although tensions are introduced at this stage, they should be revisited throughout the entire process, as indicators of emerging issues, contradictions, and opportunities.

The next task is to focus on understanding local community response/reactions to the developed near-future context.

Participants locate and map present bottom-up groups and communities (NGOs, activist initiatives, networks of individuals or experts...) that demonstrate forms of resilience in relation

to both current crises (identified in the THEME) and possible future scenarios (developed in the BACKGROUND STORY). These are referred to as "communities of resilience and action." Participants consider how this community has responded, or would respond, to future crises. If such communities are not presently visible, the participants look for "weak signals" that might indicate how similar groups could emerge in the future, and imagine/speculate accordingly. It is a narrative, a SCENARIO (up to 600 words) that serves as the setting for the further development of the project.

PHASE 3 *Let's design! This step focuses on designing and communicating future speculation(s).*

Students develop a design concept that emerges from, responds to, or is inspired by the community response SCENARIO. A design concept is the central idea—a future speculation—that articulates one key element of the community's future. It may consist of sketches, mood boards, storyboards, images, and written descriptions that define the direction of the design. It functions as a case study of a local future.

At this stage, the focus shifts to the concrete elements of everyday life in the future. What could be learned from this community that might help build different, more resilient futures?

The next task is to focus on how to deliver the story to others – how to embody the concept, communicate, and present it to the public. Participants consider how they will communicate concepts or future speculation to the public, audience, or local community. The aim of this stage is to shift attention from the project or object's internal logic towards how others might perceive, interpret, or react to the speculative outcomes.

Participants/students design and communicate the future speculation as a service, object/artefact, system, or strategy. They build a scenario and populate it with people, objects, services, and events. Whenever possible, it is important to test ideas with the community or groups that the scenario revolves around. It is also important to return to the core ideas and identified tensions, which should structure the communication as much as they shaped the concept.

PHASE 4 *This step asks what the public and the local community think about the futures that were created and how these projects can help us prepare for those futures. It considers the outcomes of the project: what we learned, how the work resonates beyond the project, and what participants take away from the process.*

In longer or more extensive projects, this stage focuses on identifying real-world outcomes:

- What long-term impact could the project have?
- How might it contribute to building community resilience or creating pathways toward more just and preferable futures?
- How did it facilitate the transfer of methods, tools, and techniques from designers to the community?
- Can it generate change—from small, local shifts to broader transformative effects?

In shorter educational projects, the emphasis is on reflection:

- How did the process deepen the understanding of speculative practice?
- What did it reveal about current systems, structures, and everyday realities?

A well-rounded project should include:

- clearly identified and well-articulated understanding of local communities and the crises they face and will face in the future,
- well-detected and relevant tensions,
- deep research grounded in the chosen theme,
- a well-written scenario that logically emerges from earlier phases,
- a presentation that communicates the project effectively,
- a public response substantial enough to inform further development—or, ideally, to spark real-world actions or community initiatives.

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Dalmeatia - Local Craft Cultivation and Cultivated Meat Tasting Room

STUDENT
Tina Listeš

CONTEXT, AIMS, AND SCOPE

The master's thesis project emerged not from a predefined brief but from a self-driven curiosity about biodesign. It focused on food production as both a technological process and a cultural and social practice embedded in everyday life. The project aimed to research, reflect on, and imagine the implications of cultivated meat as a global phenomenon situated within the local context of the Dalmatia region on the Croatian Adriatic coast. It speculated on a possible near-future scenario through the design of a fictional local cultivation facility. In doing so, the project engaged with contemporary gastronomic and tourist trends in Split and critically reflected on the hyperinflation of hospitality venues and the city's tourism-driven urban transformation.

PROCESS

PHASE 1 The initial phase involved intensive research and writing to develop a comprehensive understanding of the topic/theme. Research began from a global perspective and covered a broad spectrum of themes, including terminology, current and emerging technologies, cultural trends, social issues, politics, economics, infrastructural changes, and wider social transformations. These enquiries were complemented by an investigation into popular culture references, including literature, film, television, and contemporary art and design projects.

Within the local context, this phase included collaboration with professors from the sociology department. Online surveys were devised to assess local perspectives and levels of familiarity with synthetic foods and cultivated meat and and interviews were conducted with local professionals in the food sector, including a chef, a nutritionist, and a food influencer. The collected data were structured and analysed to identify patterns, attitudes, and behavioural tendencies related to synthetic food and cultivated meat in the local context. This phase also helped identify key stakeholder groups within the local community and informed the development of plausible near-future scenarios grounded in local realities.

PHASE 2 The background story developed in this phase imagined life several decades into the future, tracing how cultivated meat might affect people's daily lives. It addressed the central question "Why would we produce and consume cultivated

meat in the future, both locally and globally?" This narrative framework established the conditions under which the project's speculative scenario unfolded.

At this stage, the tensions framework was introduced to expand and challenge early assumptions and sharpen the conceptual focus on the project. In the initial phase, the *local–global tension*—specifically the dimension of Perspective—played a central role by foregrounding how global trends interfere with local communities. As the project developed, the Gain tension, within the *learn–earn* scope, became more prominent, helping to narrow the thematic focus during the design phase by foregrounding questions of who benefits from proposed technologies and services.

Building on this framework, a local speculative scenario was developed that imagined community responses to cultivated meat as part of a "new normal." The scenario considered how cultivated meat would be produced locally, where and how it would be sold, who would consume it, and whether it would be broadly accepted. It explored how local communities negotiate cultural, ethical, and economic shifts associated with this emerging food system.

PHASE 3 Following the development of the scenario, the project narrowed its focus to one specific case study: future restaurants serving locally cultivated meat. This choice directly engaged with the contemporary oversaturation of restaurants in Split's historic centre and drew parallels with the existing trend of local craft beer production and consumption.

Visual communication skills developed during the bachelor's program were applied to design the speculative restaurant ecosystem, including interiors, menus, posters, logos, and merchandise. This visual language served as a key tool for embodying the scenario and immersing audiences in the imagined future. To extend the experience beyond representation, a "real" prototype of cultivated meat was created using tofu and other ingredients.

OUTCOMES

The main outcome of the project is the speculative restaurant "Dalmeatia," located in the historic city centre within the ancient Roman palace. The restaurant offers a curated food experience that brings together elements of Dalmatian culinary tradition and advanced food-production technologies. Its primary target audience consists of tourists seeking to sample traditional Dalmatian cuisine while also supporting diets based on cultivated meat. In addition, the venue is imagined as attracting local residents who consume meat, as well as younger audiences supportive of craft cultures.

The restaurant's menu includes traditional dishes prepared using cultivated meat (fig. 3). A distinctive feature of this cultivation facility is its speculative offering of meat derived from extinct animal species, such as mammoths, as well as protected species, such as peacocks. Beyond prepared dishes, the facility also produces clay and ceramics "bones" designed as supplementary eating utensils. These artifacts can be purchased individually or as part of a packaged set that includes cultivated meat, a ceramic bone, and spices. Such packages are primarily imagined as souvenirs or gifts purchased by tourists.

The project was presented during the master's thesis defense and included multiple prototypes: a cultivated meat dish, a ceramic bone object, a gift box, a cookbook, standard and special menus, and other supporting materials. It was accompanied by a cultivated meat lo-fi prototype (fig. 4).

REFLECTIONS

PHASE 4 Following the master's thesis defense, the project continued to develop through two curated exhibitions, presented at both local and national levels. Reactions from the local community were mixed. While designers generally recognised the role and value of speculative practice, members of the broader public—including friends, acquaintances, family members, and collaborators—often expressed skepticism regarding its relevance. Such responses frequently took the form of questions about why educational and professional efforts should not instead prioritise products that are currently available on the market and in direct demand by consumers.

At the same time, the project's focus on food, prompted a high level of public engagement and raised ethical questions regarding future food production. Even when speculative design was perceived as lacking immediate practical applicability or understood primarily as a form of fictional entertainment akin to literature or film, the project generated sustained engagement. All stakeholders actively participated in discussions, offering interpretations, critiques, and reflections on the proposed speculative scenario. They took away not just awareness of near-future challenges but also a sense of need to prepare themselves and their communities for emerging issues.

This level of engagement reflects the project's collaborative development process, which at certain stages adopted a co-design approach. Family members, friends, experts, and fellow students were involved not merely as passive audiences but as an interpretive community within which the project was situated and tested. In addition, a collaborator with a background in biochemistry was closely involved throughout the concept development process. Further collaboration with local food-sector professionals provided valuable insights into the operational and social dimensions of the food industry.

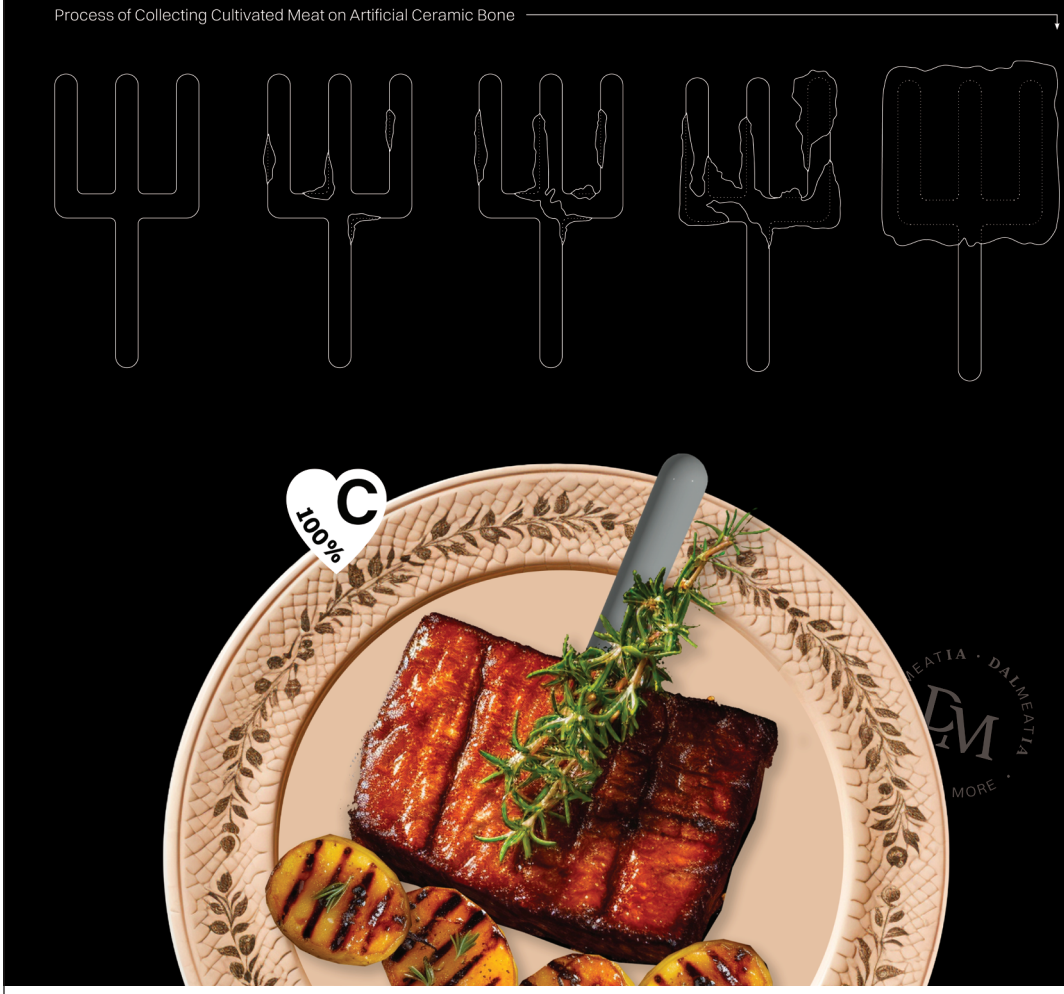

fig. 3.
The restaurant features dishes made from cultivated meat.
Courtesy of Tina Listeš.

DALMEATIA — SPECIAL OFFER

fig. 4.
The project deliverables included a cultivated meat dish, a ceramic bone object, a gift box, a cookbook, standard and special menus, and other materials. Courtesy of Tina Listeš.

CASE STUDY #2

The Future Is Unwritten

STUDENT
Alejandra Robles Sosa

CONTEXT, AIMS, AND SCOPE

The project emerged from a speculative investigation, approaching the local context from the perspective of an outsider (a Mexican student coming to the Adriatic). It examines textiles and clothing as time-travel analogues—messages through which personal worldviews and broader political and geographical contexts are transmitted from the past into the present. Local makers and craftspeople from the city of Split and its neighbourhoods were invited to reinterpret skills rooted in historical practices and project them into a future technological context. Primarily oriented toward the present, the project engages with textiles and materials—that is, clothing—and their role in the future transmission of local traditions.

PROCESS

PHASE 1 The first phase included intensive critical research of the topic and theme, starting from the global level, ranging from the history (and alternatives) of the textile industry to current technologies, cultural trends, social issues, politics, economics, infrastructural changes, and wider social transformations.

Moving from the global to the local level, the enquiry included a mapping of the City of Split's reuse, repair, and local fashion and craft textile stores. In addition, the research was extended to traditional Croatian and Dalmatian textiles, understood as codes or samples of historical contacts with different cultures: Mediterranean, Central European, Ancient Balkan, and Ottoman. This phase helped identify the main patterns and textile symbols that represent and communicate the local community and informed the development of scenarios grounded in local realities.

PHASE 2 The background story developed in this phase speculates about the challenges the local community will face in the near future. A narrative was formulated to reflect on how local identities evolve in a rapidly globalising and touristified world, a process that has increased drastically in the city of Split over the past decade.

In order to "stay with the trouble," several key tensions were identified. One concerns the contrast between store-bought solutions and improvised, makeshift practices, highlighting forms of everyday resourcefulness that stand in opposition to the single-use consumerism of the contemporary economy.

A local scenario was developed as a response to the probable future in which local identity may disappear. As a response, local textile resources are reused through handmade techniques in collaboration with seamstresses and craftspeople. These practices are approached as a way of engaging with memory: textiles carry encoded meanings. Reflecting on local realities within

a creative environment can become an act of community connection and collective memory. Through embroidery, patterns, and materials, clothing communicates personal worldviews as well as social, political, and geographical contexts. Textiles are understood as material messages across time—traces of how communities relate to their environment, histories, and aspirations, and messages that can be read by future generations.

PHASE 3 The project narrowed its focus to one specific case study, collecting local people's concepts and ideas around two natural Adriatic weather phenomena in order to imagine, design, and compose a message to the future through a collective process with the local craft community, reusing local textile materials. The project resulted in the creation of two garments for two types of wind and weather, Bura (Bora) and Jugo (Scirocco). It addresses the question: How would you explain to a future inhabitant of Split the effects of Bura and Jugo through a dress code created by locals?

A sailmaker, a seamstress, and a crochet craftsperson were invited to make a suit resistant to the Mediterranean phenomena of Bura and Jugo. Through this process they created an analogue textile message intended to travel through time to future inhabitants of Split.

OUTCOMES

A local sailmaker, seamstress, and a crochet craftsperson produced and coded garments using locally sourced materials (fig. 5). Applied textile symbols were designed, inspired by traditional forms of coding. These textile "messages" are imagined as travelling through time to future inhabitants of Split, encoded through handmade data and patterns informed by local and global cultural references. The project's meanings—its message, process, and materials—can be decoded through an accompanying glossary.

The project presentation was extended with video materials presenting the personal thoughts of the craftspeople who participated in the project, showing their messages and what they wish to share with future generations.

REFLECTIONS

PHASE 4 Following the completion of the course, the project continued to develop through two curated exhibitions presented at both local and national levels. Using different methods and tools, it aims to raise awareness and open space for discussion around local knowledge, craft, and future-making. The project focuses on the present as a site of reflection and potential action, acknowledging that actions taken today help shape possible futures. Although the social engagement generated by the project remained largely within the circle of creators, designers, and collaborators, it nevertheless sparked real-world interaction and exchange. At the same time, the project proposes concrete techniques and practical instructions that could support the development of future scenarios in the local context. Through a bottom-up and DIY approach, it invites makers in Split to reconsider their inherited craft knowledge and skills, and to

imagine how these practices might evolve and adapt within future technological contexts.

Additional reflections also emerged through conversations with members of the audience. Some suggested expanding the investigation beyond the Jugo and Bura winds to include other natural phenomena characteristic of the Adriatic region. As one local noted, “there are many more winds,” pointing to the potential of exploring a broader environmental context. One local visitor also expressed a certain discomfort with the perspective of an outsider engaging artistically with local culture. This reaction opened an interesting moment of dialogue, revealing how the project could unintentionally prompt reflections on personal and collective identity.

Throughout the project, collaboration through a co-design approach brought the voices of the local community into the process. For example, the seamstress Mirjana actively engaged with the donated sail materials and contributed design suggestions. Her participation reflected a sense of creativity and personal involvement in shaping the outcome.

fig. 5.
Artefacts produced by the local sailmaker, seamstress, and crochet craftsperson carry messages to the future. Courtesy of Alejandra Robles Sosa.

DURATION

The approach requires five sessions. It can be adapted for short workshops, integrated into a design studio, or used as a methodological approach for larger research projects such as a PhD.

STUDENT LEVEL

Master’s and above.

TU Delft

SENSING - INTUITING - IMAGING (SII)

Stavros Kousoulas Andrej Radman
Heidi Sohn Lena Galanopoulou

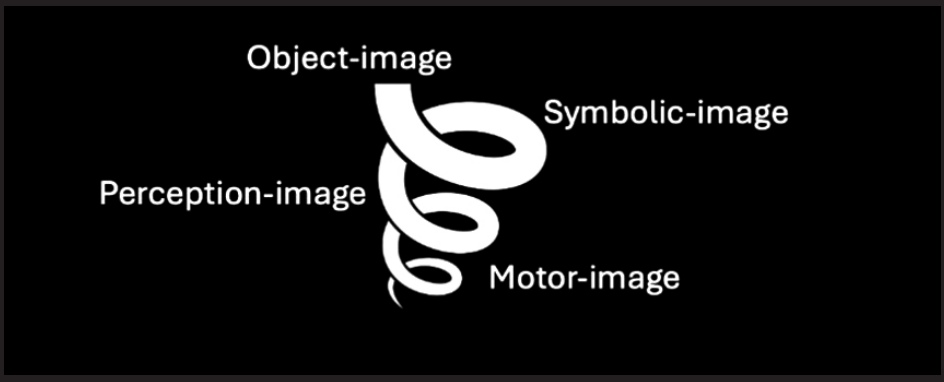

fig. 1.
The Image Phases, 2025.
Courtesy of Stavros Kousoulas and Andrej Radman.

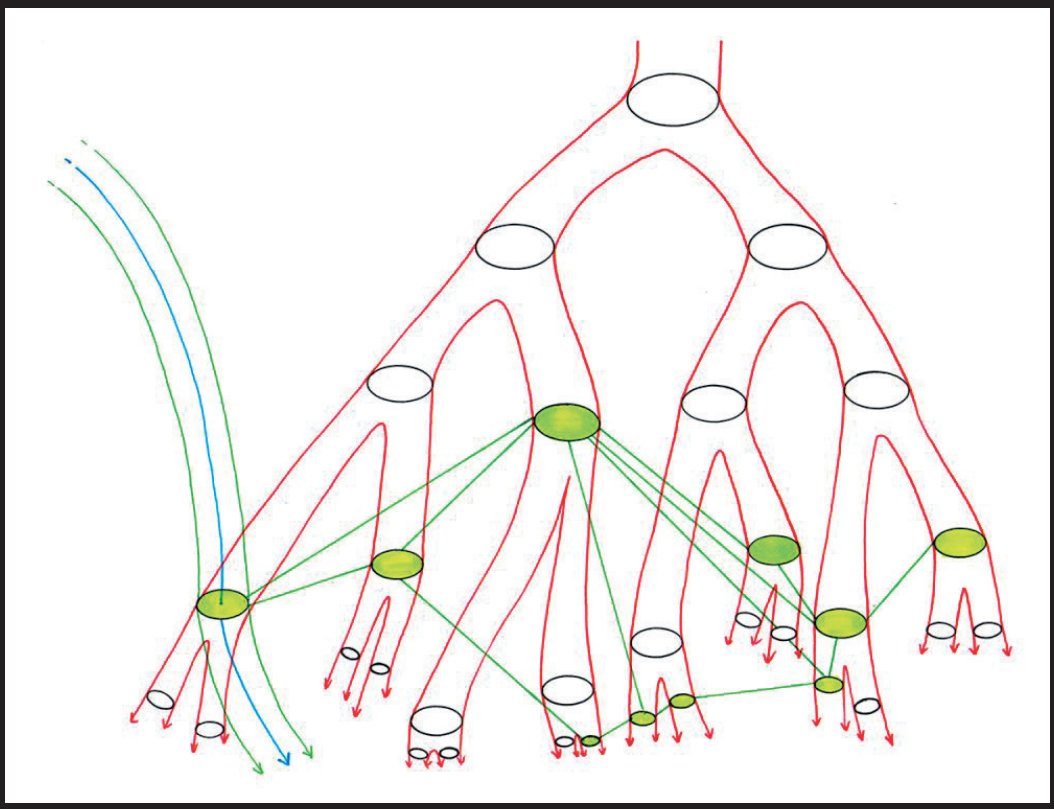

fig. 2.
Rhizome versus Tree, 2006.
Courtesy of Magda Wojtyra and Marc Ngui.
https://happysleepy.com/art/drawing
-thousand-plateaus/introduction/.

Introduction

Sensing-Intuiting-Imaging (SII) focuses on the production of speculative and intuitive problematisations. These speculations require both the formation of new sensibilities and the creation of new forms capable of expressing their potential. We shall call these forms images, but following a non-representational approach that does not reduce them to shapes, outlines, or the tracing thereof. On the contrary, we open images to an untapped affective potential that provides not only an account of "what has been" but can also invent "what is to come."

To do so, SII follows Gilbert Simondon and his ontology of images. The philosopher of technology does not relate images to human consciousness alone but argues that images are external to the thinking subject and should be understood in connection with the broader action potentials of living bodies. Conceived as transducers (or, simply, as relays) between various individuals, images establish vital links that enable organisms and their environment to form a joint system. This way, Simondon develops a pluralistic account of images in what he calls the imagistic cyclecycle (fig. 1). The cycle of images consists of four complementary phases:

MOTOR-IMAGE For Simondon, images are not primarily conscious but motor, linked to the simplest behaviours through which organisms take possession of the milieu and proceed to the initial identification of the situations they encounter. In simple terms, primitive images have no content other than movement itself. It is this dimension of motricity that constitutes the first phase of images, what we can call a motor-image. An example of a motor-image would be the act of drinking water.

PERCEPTION-IMAGE Through movement, experience registers itself and leads to what Simondon identifies as the second phase of imagistic life: perception. The motor capacities exercised by an organism in its environment reveal potentials for action that create associations among activities, environmental variations, and the organism itself. An example of a perception-image would be the river that affords the act of drinking water.

SYMBOL-IMAGE As a result of perceiving, images become organised and systematised, developing the symbolising capacities we usually associate with consciousness. In other words, the (a praesenti) activity of movement, produces both the (a priori) symbolic potential of memory and of (a posteriori) expectation. An example of a symbol-image would be the recollection and the anticipation of a river that affords the act of drinking water.

These three phases constitute the life of the image that belongs to the relationship between the organism and the environment proper: movement, perception, and consciousness. It is at this precise point that conjoins feeling, acting, and learning that Simondon introduces a crucial fourth phase, one related to invention:

OBJECT-IMAGE If the tensions between movement, perception, and the conscious systematisation of both cannot be resolved through bodily actions alone, the need arises for a "mediator"—what Simondon calls that a transducer. This transducer is the invented, technologically produced object-image. Object-images resolve tensions between different orders of magnitude, effectively restoring the continuity of activity that has been interrupted. In doing so, they restore movement, and thus bootstrap the imagistic cycle once again. An object-image can therefore lead to novel perceptions, and, eventually, to new symbolic systems. An example of an object-image is the cup, invented to automate the activity of drinking water, no longer relying on the concavity of one's bare hands.

OBJECTIVES AND EXPECTATIONS

There are three key factors pertinent to the SII approach:

FIRST to highlight that images and imagination should not be conflated with visual representations or, even worse, with the solitary acts of an individual and their presumed psychic or intellectual capacities. What makes the ontology of images so compelling is their transductive in-betweenness: at once objective and subjective, abstract and specific, of the world and of the self.

SECOND to underline that images do not belong to the individual, and imagination is not a solipsistic act. Nor do they belong to the environment conceived as an isolated container. Images, imaging and imagining arise in and of the relation between organism and environment. They solidify, modify, and transduce this relation in manners that propel the individuation of both organism and environment precisely because they belong to neither. The SII cycle is thus not circular and homeostatic but spiral and metastable.

FINALLY to regain knowledge and power over the production of images, especially at a time when this production is increasingly outsourced to automated processes that hinder the creative potentials of image-making and diminish the designerly capacities of those involved.

DELIVERABLES

- One diagram that expresses the movement of a flow.
- One map that captures the spatiotemporal specificities of flows.
- One encyclopaedic notational drawing that expresses what is singular in a flow, regardless of context.
- One image that results through the exchange of topics among participants.
- A 500-word text that articulates the research problem.
- One A1 sheet that compiles all the above in a single format.

REFERENCE PROJECT: MSC2 ARCHITECTURAL TECHNICITIES DESIGN STUDIO, TU DELFT

Example of Research:

SII was taught as a two-week intensive workshop comprising five meetings that took place at the beginning of the design phase of an MSc2 studio. The students had already selected a site in Split and had developed a specific problem of interest. The presence of both a location and a problem is crucial for SII, as its successful execution relies on the entanglement of the two.

Topic of Interest:

(Over)tourism and the Mediterranean South.

Design Hypothesis:

The city of Split in Croatia – and specifically its historical centre – will be examined through exploratory and speculative research into its past, current, and potential technicities: the ways in which inhabitants alter their environment through architecture, and how these alterations, in turn, transform them.

Example of SII result:

Title:	Stocking Intensities, Negotiating Bifurcations, Weaving Beliefs
Participants:	Chloe Bodin, Enrica Agus Klumper, Max de Groot

Stocking Intensities, Negotiating Bifurcations, Weaving Beliefs emerged from an exploration of individual convictions — underlying beliefs shaped by past experiences — which were initially abstract but gradually coalesced into shared problematics of power, control, and manipulation. Through the development of a collective glossary and a sustained process of theorisation, the project engaged concepts from Deleuze and Guattari's

flow–code–stock triad to frame urban experience as a dynamic field of negotiation rather than a fixed representation.

Drawing on the affective intensity of Split's green market, the project recognises vernacular practices of spatial claiming amid the tensions between locals and tourists. The project mapped 69 singular experiences, each subjected to personal grading systems that revealed how intensities defy objective legibility. This speculative cartography enabled participants to understand experience not as fixed but as continually modulated through negotiation, conflict, and movement — what they referred to as bifurcation points. These moments of qualitative change served as conceptual hinges, challenging fixed codes of ownership in favour of a performative and evolving notion of "owning."

The resultant design intervention proposes a suspended net structure above Split's old town—a literal and conceptual field of negotiation. Supported by a scaffold of columns (signifying enduring beliefs), the net performs as a dynamic surface of shared owning, shaped and reshaped by the flows of people, objects, shadows, produce, water, and weather. Tables suspended from the net become temporary sites of mediation—market stalls, playgrounds, platforms of encounter—destabilising vertical hierarchies by requiring constant adjustment and co-participation.

Inspired by Simondon's imagistic cycle, the project unfolded from mapping motor-images of market flows (money, sound, decay) to perception and symbolic reconfiguration, culminating in an object-image: a speculative device for generating new social relations and architectural subjectivities. (fig. 3) The net thus becomes an infrastructural diagram for negotiating intensities, capable of reconfiguring without breaking, and proposing a resilient, open-ended technicity of collective becoming.

SCHEDULE: KEY STAGES

PHASE 1 (20% project duration)
- Project launch: introduction to Simondon's imagistic cycle.
- Optional: formation of participant groups (if not already established).
- Outline of the four upcoming project phases and their deliverables.

PHASE 2 (20% project duration)
- Development of the motor-image diagram.
- Review.

PHASE 3 (20% project duration)
- Development of the perception-image map.
- Review.

PHASE 4 (20% project duration)
- Development of the symbol-image annotation.
- Review.

PHASE 5 (20% project duration)
- The participants exchange their projects and incorporate one another into their work.
- Development of the object-image.
- Final review.

PHASE 1 Project launch

- Presentation of Simondon's imagistic cycle.
- The four phases of images will be laid out along with their philosophical and theoretical background, their broader implications, their potential, and their radical differences from traditional approaches, as well as their relation to architecture thinking and doing.
- Presentation of the workshop brief and objectives.
- Presentation of the schedule and project steps.
- Definition of the research subject (a list of examples is provided).
- Examination of the related issues (and the relationship to design), including questions of image-making, visual arts, design, artificial intelligence, ethical issues, political implications, etc.

Optional
- Formulate participant groups if they are not already established.
- Formulate groups, ideally of three to five participants per group.

Outline the Four Project Phases
- Explain how diagrams relate to flows; define flow as literally anything in flux — bodies, money, water, light — anything that relates to each group's design problem.
- Explain how mapping relates to perception, as flows crystalised in space and specified locally and temporally.
- Explain how annotation operates as a process of encyclopaedic ambition: transforming a specific flow and its specific spatiotemporal expression into an abstract notion; think, for example, of an IKEA manual.

PHASE 2 Development of the motor-image diagram

- Examine motor-images as the primary movement of flows.
- Speculate on the kinds of flows involved in both the theoretical problem as well as in the urban conditions of the selected location.
- Produce a diagram that attempts to express the movement of the group-specific relevant flow(s). The diagram can be hand drawn, digital, or a combination of both, but must remain non-representational.

Review
- Each group presents their diagram at the end of the day: ten minutes for presentation and ten minutes for discussion.

PHASE 3 Development of the perception-image map

- Examine perception-images as the registering of flows and their assignment to a specific place and time.
- Speculate on where and when these flows are registered within the selected location.
- Produce a map that identifies and captures the spatiotemporal specificities of flows. The map has no scale constraints and does not need to follow traditional cartographic formats; a façade or section of a building can function just as effectively as a map.

Review
- Each group presents their map at the end of the day; ten minutes for presentation and ten minutes for discussion.

PHASE 4 Development of the symbol-image annotation

- Examine symbol-images as the resingularisation of flows.
- Speculate on how flows are taken away from their specific context, expressed in terms of their most singular aspects, and eventually opened to a potential anywhere and a potential anyone.
- Produce an encyclopaedic notational drawing that expresses what is singular or generic in a flow, regardless of context.

Review
- Each group presents their encyclopaedic annotation at the end of the day; ten minutes for presentation and ten minutes for discussion.

PHASE 5 Development of the object-image

- Examine object-images as inventors of flow.
- Speculate on how novel flows are invented when the captured, contextualised, and eventually resingularised flows relay from one domain to another.
- Produce an output that remains fundamentally open and cannot be predetermined.

Review
- Each group presents the compiled A1 of all image-phases, including the object-image, at the end of the day; twenty minutes for presentation and twenty minutes for discussion.

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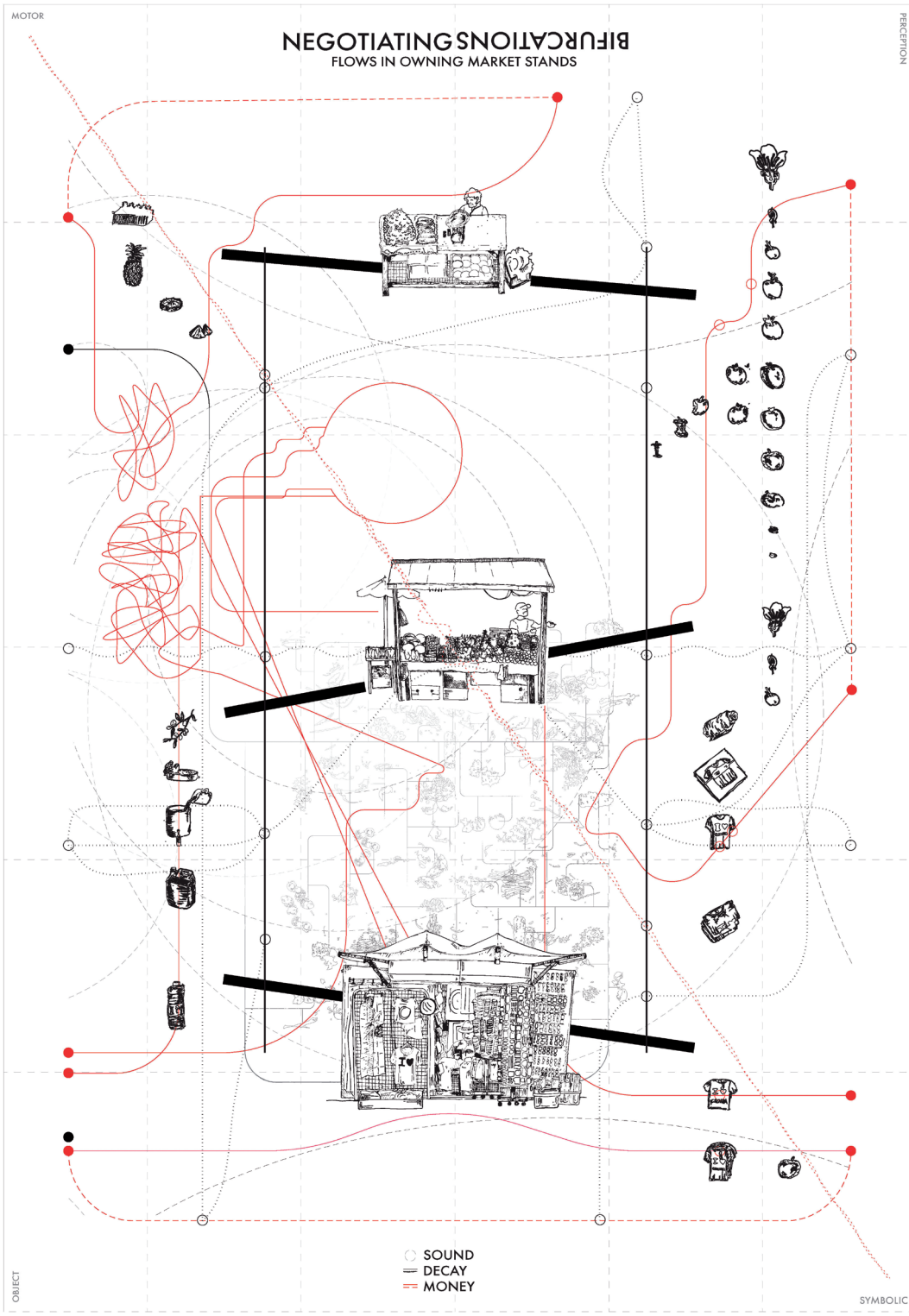

fig. 3.
Stocking Intensities, 2025.
Courtesy of Chloe Bodin, Enrica Agus Klumper and Max de Groot.

Love, Death and the Cybersiren

STUDENTS
Jean Rojanavilaivudh Mees van Rhijn
Miguel Borst Koen de Nie
Qiyu Chen

CONTEXT, AIMS, AND SCOPE

The project, part of the MSc2 Architectural Technicities Design Studio, focuses on the port of Naples and examines it as a space of exclusion and disconnection from the city. As part of the SII workshop, the students' aim was to examine how the port area can be seen from the perspective of its flows, how these flows determine it, and how they might inform a speculative design that opens the port to the city – both spatially and temporally.

PROCESS

The flows that weave through and move across the port and Naples are multiple and heterogeneous. The roots of all flows can be traced back to a simple trinity—not of singular points, but of overlapping and intersecting circles. This trinity defines the port and simultaneously offers a general understanding of the site. It consists of the Sea, People, and Technology and can be traced back to the genealogical research conducted at the beginning of the project.

Underlying and overarching these are fundamental motor flows that the students define as flows of belief and flows of control. Upon initial introspection, the flows of belief and control appear to form two separate systems. Flows of belief seem to operate as a personal system, driven by individual intentions and therefore open to transformation through one's own convictions. From this perspective, a duality emerges between systems of control and systems of belief. We appear to control what we believe but not what controls us. Systems of control thus remain exterior to personal agency, of modes of influence.

However, this misconception ultimately denies the reciprocity of the two systems. Flows of belief and flows of control can never be fully separated. Control is not merely imposed, and belief is not inherently personal. Rather, the two are deeply entangled. It remains unclear where flows of control and belief fuse and transform into one another. What is evident, however, is that they participate in a constant feedback loop, feeding off and into each other.

Addressing the Neapolitan condition therefore requires more than confronting an external form of control. Control is not an almighty, intangible, and unchangeable structure. What controls can only do so because, at minimum, belief is vested in it. To disrupt controlling systems is therefore also to disrupt the beliefs that sustain them. An incoming flow towards the Neapolitan system of control and belief arrives like a ship at the port. It is

through differentiated interactions that flows either integrate or fail to become part of this system.

Simondon's object-image here becomes a critical breaking point where the motor-perception-symbol loop is interrupted and space opens for hybrid forms that challenge and redefine relationships and identities. The thought of Donna Haraway intersects with this position, introducing cyborg entities, holobionts, and chthonic figures as inherently monstrous and illegitimate formations that unsettle traditional notions of identity and repair. Cyborgs emphasise regeneration over reproduction; they embody resistance and recoupling beyond conventional frameworks. Haraway's chthonic entities "make and unmake," without adhering to a fixed ideology.

Within this framework, the project's object image emerges as the Cybersiren: an ultimate breaking-machine, a disruptive and provocative agent. Conceived as a queering body-machine, it destabilises normative boundaries and embraces fluidity and transformation, aiming to rupture overcoded situations of authority and sustain the dynamic relation of belief and control.

OUTCOMES

The workshop resulted in the production of four images—each corresponding to a phase of the Simondonian imagistic cycle—plus a final design proposal. A diagram was produced to express the flows of belief and control, capturing openness and closure as their defining characteristics, both in isolation and their entanglement.

The mapping of the port of Naples, corresponding to the Simondonian perception-image, situated flows within specific spatial and temporal conditions and revealed not only how they emerge and come to be distributed, but also the role design plays in this process. By turning the Neapolitan port into a symbol-image, the project extends beyond the given to examine how it guides and influences the logics of urban conviviality—what, in simplified terms, is called culture (fig. 4). Building on the previous three image-phases, the notion of the Cybersiren was born.

While first articulated during the workshop as a body of encounter for diverse Neapolitan concerns, it was during the subsequent design phase that the Cybersiren acquired both formal expression and affective power: the capacity to mythologise the present, allowing both past and future to be rearranged and challenged as supposedly valid a priori (fig. 5).

REFLECTION

The workshop enabled the students to trace the existing—literally, in the expression of the design(ed) forms of control and exclusion—while speculating on how these conditions both inform and are informed by elements typically considered intangible: the social, the cultural, and the financial. Through the imagistic cycle, the project articulates the Neapolitan port as an entanglement of movement, perception, the symbolic, and the invented (designed) reality, ultimately advancing a proposal of radical mythologisation. Without falling into cliché and, crucially, without losing touch with the conditions that necessitated its emergence, the Cybersiren operates simultaneously as figure and ground—the ultimate speculative machine—precisely because it contains no ghost; it becomes the ghost itself.

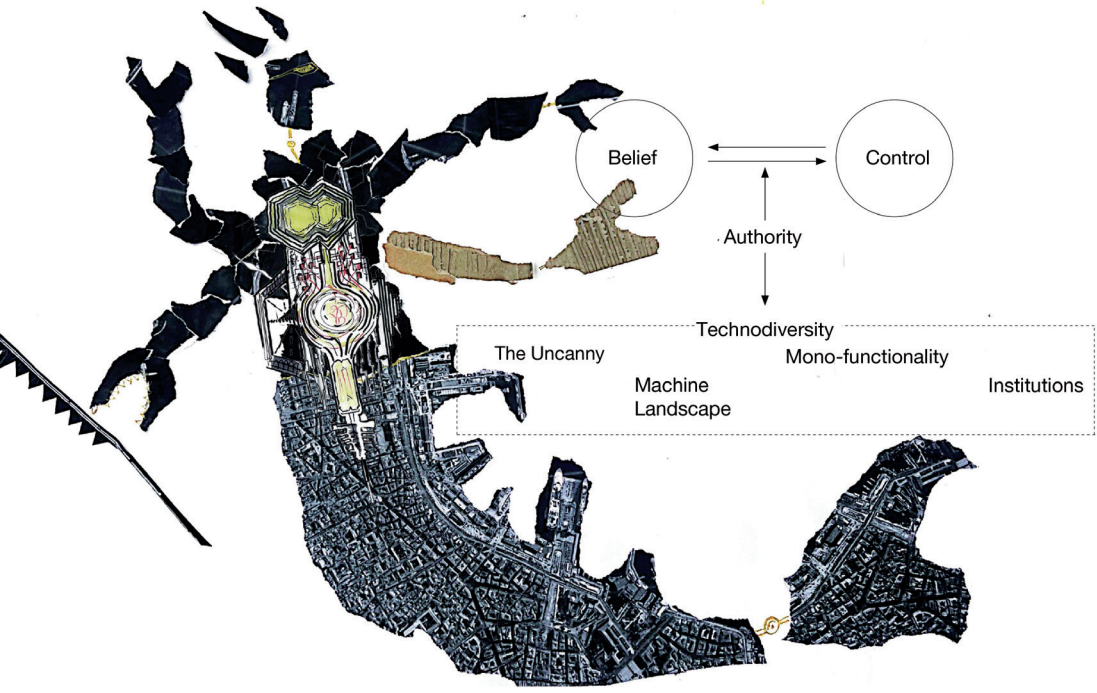

fig. 4.
The Cybersiren.
Courtesy of Jean Rojanavilaivudh, Mees van Rhijn, Miguel Borst, Koen de Nie, and Qiyu Chen.

fig. 5.
The Cybersiren Reborn.
Courtesy of Jean Rojanavilaivudh, Mees van Rhijn, Miguel Borst, Koen de Nie, and Qiyu Chen.

CASE STUDY #2

Projections of Hyper-Individualism

STUDENTS
Cristina Ruiz Rodríguez Daria Pietruczynik
Marie-Luise Schlesinger Merel van Casteren
Remolly Yin

CONTEXT, AIMS, AND SCOPE

The project, part of the MSc2 Architectural Technicities Design Studio, focuses on Naples' Quartieri Spagnoli, one of the city's oldest neighbourhoods. It examines the area as a place where belief, care, and authority come together in forms (and conditions) not usually associated with them. The countless shrines found on every corner of the narrow streets are understood as expressions of a profound form of care that exceeds the spatiotemporal limits of the "present" and provokes a folding of heterogeneous (yet not contradictory) dimensions.

PROCESS

The shrines, understood literally as machines that produce intensity, are determined by the distance between them. María Puig de la Bellacasa, in *Matters of Care*, describes productive care as "the right distance" between the carer and the cared-for. One can therefore presume that "right" care concerns the adequate modulation of intensity, as transcendence emerges from the modulation of intensities created by the distance between, for example, the drives of life and death. The modulation of intensity produces various potentials or spaces of possibilities where singularities emerge. Shrines, regardless of their context, consist of four "universal" elements: a deity, a ritual (or a set of rituals), objects that serve as media, and a self (individual or collective).

Between Neapolitan Heaven and Hell, layers of historical sediments have formed. These layers function as plateaus in which Heaven and Hell mix in varying proportions. In strictly geological terms, the multiple eruptions of Vesuvius, Campi Flegrei, and Ischia transported millions of tons of molten rock from the Earth's core into the sky and subsequently onto the Earth's surface. The ejected volcanic material covers the soil, as do remnants of past versions of the city of Naples. Layered between these are gravesites that act as vertical connections within the built-up sediment.

While the flows are directed vertically and the geological sedimentations horizontally, the accumulation of desiring machines creates a dense network of belief that disregards the spatio-temporal flows inherent to the Quarter Spagnoli. The different flows feeding into these machines also contribute to their reassembly, after breakdown and affect the redirection of belief. While flows were previously treated as context-specific,

they can be stripped down to universal categories such as community, creation, matter, time, and blood. If flows can be understood as continuous movement, drives express forces. The shared drives between these desiring machines can be universally classified as redemption, belonging, healing, and devotion.

The virtual shrine inherently transforms aspects of the desire machine. The distance between projector and projection surface produces a political condition, as more than one party must negotiate the installation. The requirement of energy introduces a second political framework of negotiation and involved parties, thereby blurring the question of authority. As with care and transcendence, the distance between these points can be understood as generating a third term—the in-between zone. In relation to authority, the higher point controls what is projected, while the lower-level authority provides the surface.

OUTCOMES

The workshop resulted in the production of four images—each corresponding to a phase of the Simondonian imagistic cycle, as outlined in the SII approach—plus a final design proposal. A diagrammatic motor-image refers to sexuality and procreation as the most primordial ways of achieving immanent transcendence—becoming part of something larger than and "outliving" oneself.

Desire operates as the driving force of transcendence; as a motor-image, this desire is related to sexuality, production, and species continuation. In contrast to religious views, which often imagine transcendence as a vertical movement toward an ultimate authority or perfection outside the plane of immanence, procreation realises transcendence within the immanent horizontal plane. The perception-image takes the form of a map of the situated shrine, displaying connections among time, belief, and place.

The vertical arrangement of the image is determined by temporal events linkages. The frame is determined through the geological and Christian scheme of Heaven and Hell, represented by the sky and lava. A symbol is produced for this duality—strictly Neapolitan and therefore locally relatable (fig. 6).

In the symbol-image, the Libidinal creates the fertile ground and driving force for desire; the Numen expresses social and authoritarian structures through the distribution of responsibilities and acts of respect toward the altar; finally, the Volup—divine power—appears here as the guiding force sought by the family. As object-image, the project collapses all the previous phases into a single (projected) plane: a virtual shrine.

The idea of a projection refers to one of the shrine's original functions, whereby light from oil lamps transformed streets into places of worship and deterred petty thieves. The notion of projected care (and a caring projection) was further developed in the design phase of the project, where the formation of the individual was stripped of its situated collective dimension, only to be speculatively—and exaggeratedly—digitalised: a belief so conceptual that it is no longer able to possibilise (fig. 7).

The workshop provided the students with the opportunity to extrapolate from the seemingly well-understood concept of care through points of view rarely (if ever) associated with it. Care emerged as a highly specific local expression of a non-local condition, which, once exposed in its Neapolitan specificity, radically alters its supposedly "universal" understanding. Through the imagistic cycle, a distinctly Neapolitan form of care was articulated and expressed—one that is simultaneously duty and pleasure, an unbearable weight on one's shoulders and the light wind that lifts one from the ground. Care was expressed imagistically as a collectively produced, managed, and oriented belief; a gathering of flows that brings the most immanent low and the most transcendent high together through the invented object-images that bind and surpass them. Through this Simondonian imagistic detour, the project advances a concise yet striking claim: care is infrastructural, and all infrastructures are matters of belief.

fig. 6.
Backwards Transcendence.
Courtesy of Cristina Ruiz Rodríguez,
Daria Pietruczynik, Marie-Luise Schlesinger,
Merel van Casterenm, and Remolly Yin.

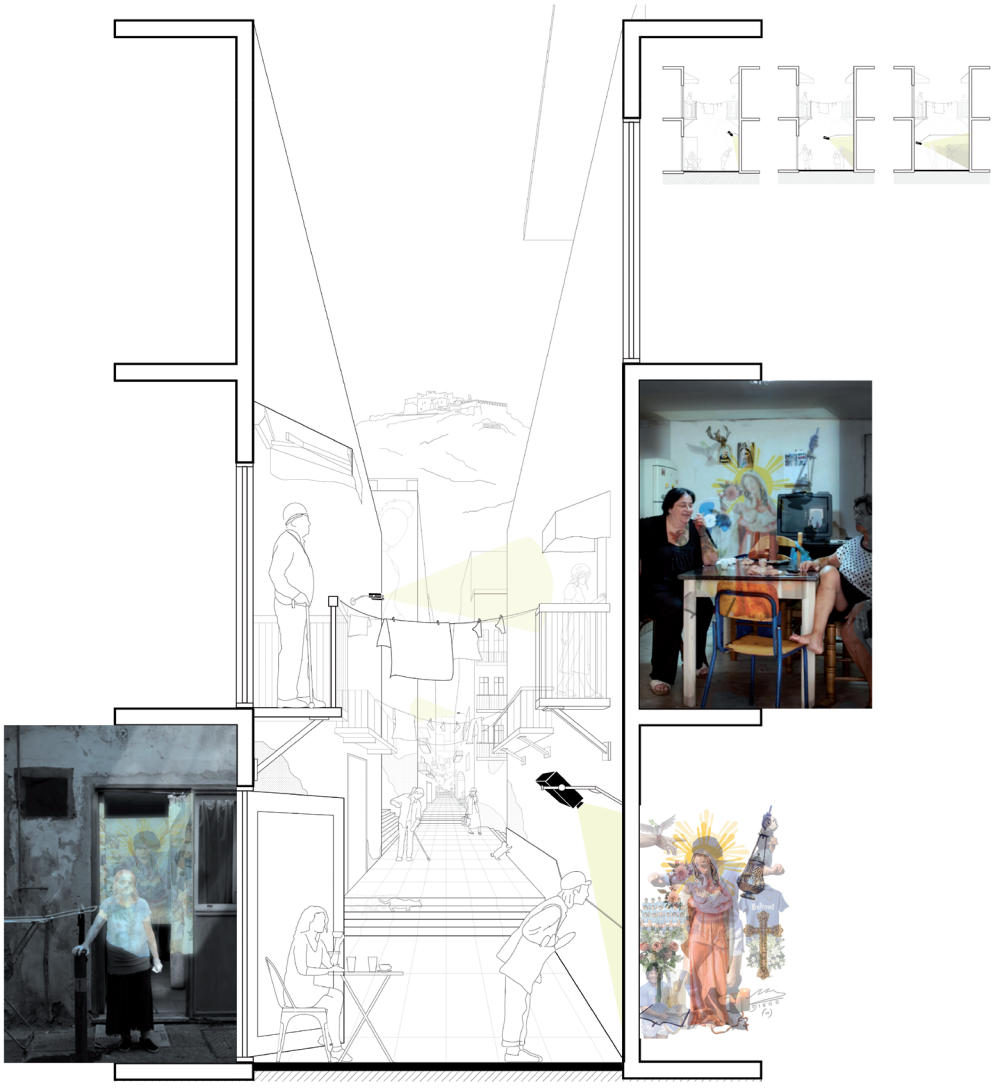

fig. 7.
Projections of Hyper-Individualism.
Courtesy of Cristina Ruiz Rodríguez,
Daria Pietruczynik, Marie-Luise Schlesinger,
Merel van Casteren, and Remolly Yin.

EAA

SEMIOSPHERE AND IMAGOSPHERE

Jüri Soolep

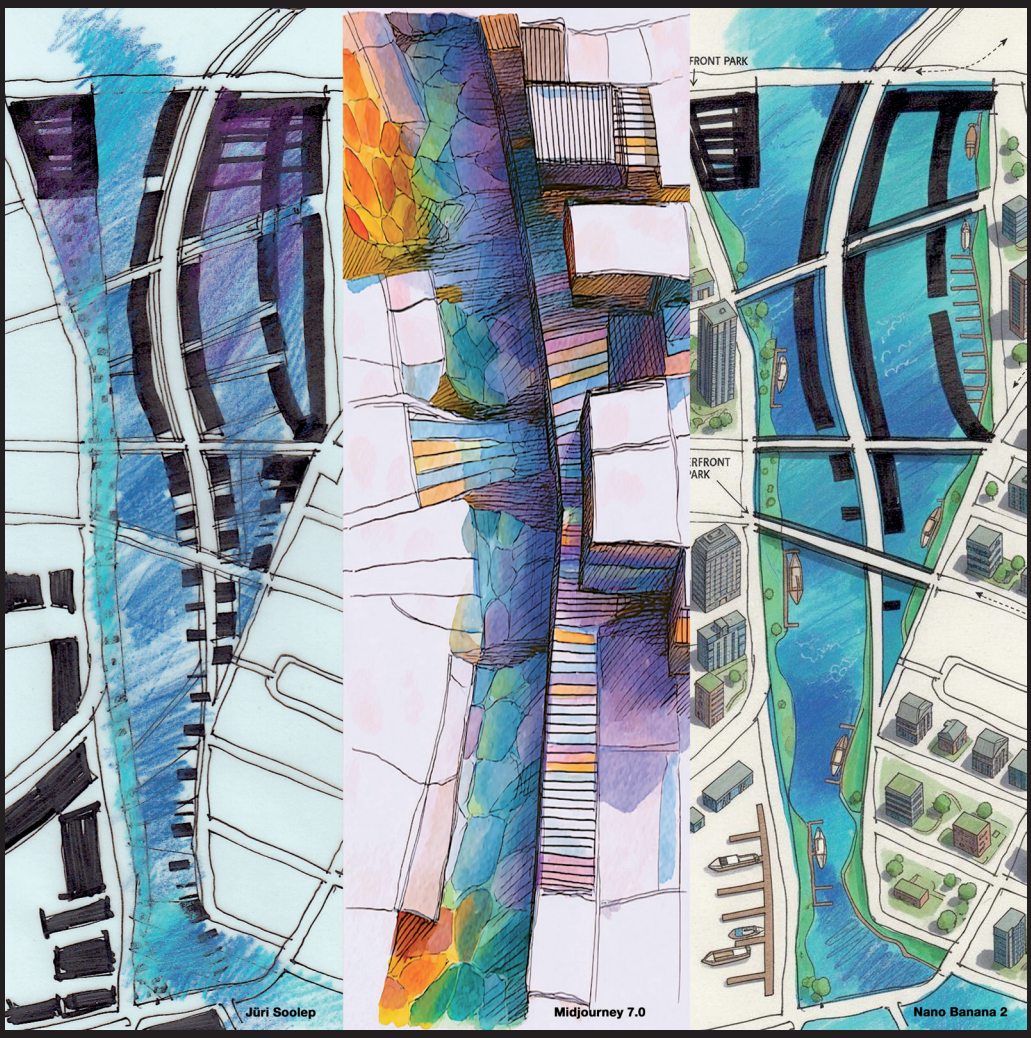

fig. 1.
An exploration of several design languages.
Courtesy of Jüri Soolep.

Introduction

The design processes in architecture and planning are undergoing rapid changes. A major disruption appeared in mainstream design practices and technologies around 2000 with the rapid digitalisation and automation in ICT. This disruption has recently been intensified by the emergence of artificial intelligence in language modelling and image generation. We can assume that this has accelerated the Fourth Technological Revolution even before the third has been fully understood. Within this context, this approach was initiated by two interconnected foci: the future of work in the architectural profession and the complexity of design languages in architectural practice and teaching.

The Future of Work in Architecture

All architecture schools face a critical challenge: how to teach skills that will remain relevant in the future. Given the long duration of architectural education (at least ten years, including preliminary practice) academia must anticipate a rapidly changing world, shaped by accelerating technological transformation. Many institutions struggle to keep pace.

Although architecture as a cultural and intellectual practice is thousands of years old, it has always depended heavily on technology—especially building technologies that shape the material environment. Sociologist Daniel Bell identified three major technological revolutions in modern history. The first, around 200 years ago, was driven by steam power, deep-shaft mining, and factory production, enabling global industrialisation. The second, about 100 years ago, emerged from electricity (telegraph, telephone, lighting, electrical machinery) and synthetic chemistry (petrochemicals and plastics). Bell also foresaw a

third revolution: the convergence of computers and telecommunications into a unified global information network — the "wired nation" and the "world society" (Bell 1987, 10-11).

Each revolution profoundly transformed architecture. Alongside technological shifts came structural changes within the profession itself, particularly two major "isolations." For millennia, the architect and the builder were the same profession—the ancient Greek architecton—responsible for both designing and construction. Buildings were conceived mentally and realised directly through hands-on methods.

The first major separation occurred during the Renaissance, championed by Leon Battista Alberti. Architectural practice shifted from sacred geometry, physical construction, and rule-of-thumb techniques to systematic two-dimensional projections and perspectival drawings. Architecture moved from material craft toward abstraction, geometry, and theoretical representation. This has remained the mainstream architectural design practice until now.

The second major isolation of the architect–designer coincided with the First Technological Revolution and produced a new division: between architect and engineer. As mathematical and constructive knowledge expanded, it became too vast to be mastered within a single profession. The founding of the École Polytechnique in 1794—shortly after the first patents for an operational steam engine—symbolised this shift. Although engineers produced drawings resembling architectural plans, their essence was exclusively structural and constructive. The split between artistic conception and technical execution became firmly institutionalised and has survived until today.

These two fundamental divisions initiated an ongoing fragmentation of the architectural profession. Over time, an increasing number of specialised consultants entered the processes of building and urban design. Today, architects function as members of large multidisciplinary teams of different designers and engineers. Yet they have retained a strategic cultural role: generating initial sketches and articulating creative, social, religious, or utopian agendas that frame architectural production beyond purely technical demands.

The Third Technological Revolution further complicated this landscape. In 2014, *The Economist* revisited earlier predictions of technological transformation, describing a new wave driven by computing, information, and communication technologies. Innovations such as machine intelligence, advanced robotics, unmanned vehicles, real-time language translation, and mobile telepresence promise profound economic and social change (Avent 2014).

The article argued that automation and digitalisation would hollow out the middle of the labour market. Highly creative and low-skilled manual jobs may remain relatively secure, while mid-level professions are more likely to face displacement. Moreover, digital work's geographic flexibility intensifies competition, enabling tasks to be performed anywhere with reliable internet access.

The question of the future of work for architects and other design-based professions thus stands: will the architectural profession remain within highly creative occupations in the coming phase of the Third Technological Revolution? And secondly, will the work of architects change? Architectural schools must

primarily address the latter question. A reality check is needed: how far has this process of transformation already progressed?

The emergence of discussions around the third technological turn and its aftermath also raised questions about how susceptible jobs are to computerisation. Already in 2013, a study that gained wide attention was published: *The Future of Employment: How Susceptible are Jobs to Computerisation?* (Frey and Osborne 2013). At the time, computerisation primarily referred to digital work domains, automatisation, and robotics. The authors examined 702 detailed occupations and estimated that about 47% of US employment is at risk. This finding created considerable concern within the European Union.

The OECD subsequently commissioned its own study: *The Risk of Automation for Jobs in OECD Countries*. This study was much more reassuring: it found much lower disturbance to the labour market as it divided jobs into separate tasks and concluded that task-based automatisation posed a much smaller threat than the Frey-Osborne study had suggested. The study estimated that, on average, around 9% of jobs across OECD countries would be affected with variations ranging from about 6% in Korea to 12% in Austria (Arntz, Gregory, and Zierahn 2016). It must be stressed, however, that this technological change primarily concerned industrial sectors.

Within the broader phenomena of digitalisation and expanding computational power, a new development emerged: Artificial Intelligence (AI). Quite unexpectedly, almost non-intentionally, it was released in 2022, and demonstrated remarkable performance in language modelling despite relying on a relatively simple operational principle—calculating the probability of sequential tokens: syllables, numbers, letters, and punctuation. It quickly became a mainstream user interface for all kinds of text-based digital work. This technology has been "interiorised," in the sense described by Marshal McLuhan, so rapidly that we now use it daily without noticing.

In April 2023, Ed Felten published the survey *Occupational Heterogeneity in Exposure to Generative AI,* examining how advances in generative AI—particularly language modelling and image generation—affect human occupations. The study revisits concerns raised by Frey and Osborne (2013). Unlike earlier automation focused on robotics and industrial production, generative AI targets cognitive and creative domains (Felten, Raj, and Seamans 2023).

The researchers mapped ten AI applications (including image generation, language modelling, and game-playing systems) against 52 human abilities and approximately 800 occupations listed by the US Department of Labor. They found significant exposure in language-intensive professions: university teachers, telemarketers, and sociologists ranked in the top ten, with political scientists, judges, counsellors, and psychologists also highly exposed.

Design and creative fields appeared especially vulnerable. Highly exposed occupations included interior designers, architects, chemical and civil engineers, art directors, film and video editors, graphic designers, mathematicians, and multimedia artists. The study emphasises policy investment in digital skills training to help workers adapt. Complementing this, Statista reports that while 23% of organisations expect job displacement from AI, 49% anticipate new job creation, signalling profound

labor market transformation (*AI Trends & Predictions. Roadmap to 2025*, 9).

Technological advancement thus narrows the architectural profession by fragmenting its scope in designing spatial environments and exposes its core expertise—create the visual language of initial spatial ideas—to a wide variety of interested parties.

Within the SUrF initiative, the Estonian Association of Architects conducted a workshop to investigate the state of affairs in design languages, including those using AI. It was organised under the general theme of the future of work for design-based disciplines. To advance knowledge of architectural design languages and establish a baseline for further speculative approaches, an experimental workshop was designed. It consisted of four different design languages for urban planning tasks. The language domains were:

1. Current design practice in an architectural office using mainstream workflows and design software.
2. The archaic design language of hand-drawn plans, sketches, and other representational images.
3. AR- and VR-driven design languages using the latest digital software.
4. AI-assisted design languages using text prompts and language modelling.

In addition, several experiments were conducted with ChatGPT 2.5 and Midjourney 6.0-7.0. It is not highly specialised AI tools embedded in CAD software that one should worry about. Such special tools have historically been accessible only to professionals because of their complexity. Rather, it is the natural language-based mainstream AI systems that everybody can use that pose the greatest challenge for design professionals. This challenge is already affecting photographers, graphic designers, and other creators of visual arts. Due to the fact that current AI systems do not yet operate with scale as a geometrical analytical tool, architecture and design have not yet been fully exposed to the same degree of disruption.

Languages Set Free: Semiosphere and Imagosphere

To cope with the theoretical background of architectural phenomena within the development of AI, we propose two concepts, the *semiosphere* and the *imagosphere*. The first relates to language modelling and the second to image generation. Both address the hypothetical immanent structures of different languages.

> "ChatGPT is implemented through a deep neural network architecture that consists of several layers of transformers. These transformers are designed to process sequential data, such as natural language text, and can generate coherent and human-like outputs. To train ChatGPT, a large corpus of text data is fed into the model, allowing it to learn patterns and relationships between words, phrases, and sentences. The training process is iterative, and the model continues to improve as it is exposed to more data"(Kalla, Smith 2023).

The fine-tuning of the ChatGPT model is rather complex, but the working mechanism is quite simple: it utilises the most common patterns and relationships between "tokens." From these relationships, larger linguistic structures are created. The result is coherent and intelligent text without human-like consciousness being involved.

The general mechanism of AI is thus a result of building on top of large, potentially meaningful sequences of texts, codes, and images. We might call these chains of texts or images genealogies. The concepts of *semiosphere* and *imagosphere* propose a speculative hypothesis: beneath the natural-language layers of semantics, syntax, and grammar are deeper and wider structures that are difficult to notice and explain. Still, if these structures influence language statistically and morphologically, they will also be reflected in the AI texts re-generated.

This type of hidden language structure was studied by Juri Lotman, the Tartu University scholar of Russian language and literature. He called this empirical and quite complex model the *semiosphere*. The *semiosphere* is an abstract space of language and its deeper structures. It has its own substructures, centre and periphery, core and buffers. It includes the translation of different texts into a particular *semiosphere* as well as translations between primary natural language and secondary poetic language. Lotman embeds meaning in the vast, evolving space of culture. Taken together, his work suggests that meaning cannot be fully captured by logic alone, nor even by use in isolated language-games. Meaning lives in the complex, historical interaction of signs, practices, and cultures (Lotman 1984; Lotman 1999).

Similar to Lotman's concept of the *semiosphere* in textual studies, it is possible to look at the *imagosphere*, the continuum of meaningful sequences in the visual field. The meaningful sequences and genealogies of visual structures in art and architecture have previously been studied by authors like Erwin Panofsky, Alberto Perez-Gomez, Dalibor Vesely, and Joseph Rykwert.

The term *imagosphere* was coined as a metaphor for the state of cultural and economic developments, dominated by the supremacy of the image and the screen. In most cases, the screens are also the only means of accessing digital platforms—they are the "windows" of the digital domain. Every new piece of information added will become available through a digital platform in the form of a screen or projection—it becomes visual. The world becomes mediated through an interface or membrane of a specific kind. Saturated images surround us like an atmosphere. It can be argued that visual images have a much more complicated and autonomous semantic structure and genealogical background than ordinary live language or text—hence the term *imago*.

The personal, collective, and archetypical meanings of the *imagosphere* are hidden deep beneath the modern, alienated surface layer of the image phenomena. Images establish their own space/time structures, and they exhibit their own histories of creation and composition. They also establish a particular value system. All these deeper meanings remain mostly hidden from the creators and distributors of images. Images do not easily allow themselves to be tested for their truth value—whatever they depict has an existence—an "intentional inexistence." Words and text can be evaluated; syllogisms can be proved, but they do not establish a similar many-layered field of meaning rooted in personal and collective experiences as images do (Soolep 2018; Soolep 2025).

In the digital age, the image has achieved unprecedented supremacy. Although images have accompanied human cognition for at least 60,000 years, contemporary technologies have amplified their scale, speed, and impact. Unlike text, speech, sound, or touch, images possess distinctive qualities that grant them relative autonomy and make them powerful vessels of layered meanings.

FIRST, today's globally circulated images generate an explosion of entangled meanings. When a single image is instantly shared worldwide, it accumulates diverse interpretations shaped by viewers' cultural, experiential, and archetypal frameworks. These layers adhere to the image like a "comet's tail," initially latent but capable of becoming highly volatile once amplified through "viral" circulation. Events such as the 2015 attack on *Charlie Hebdo* illustrate how images can catalyse intense global meaning production. With AI, this dynamic intensifies: generative systems can reinforce meaning by drawing on multiple prototypes and contexts, or dilute it when excessive references cancel one another out.

SECOND, images establish their own value systems. While often shaped by an author's intention, images can exceed or even contradict that intention. Their internal coherence, intensity, or circulation may redirect interpretation. Even automatically produced images—such as surveillance footage—acquire layered meanings through context and social networks, operating independently of their makers.

THIRD, every image exists between the past and the future. It carries a specific history of production—deliberate or mechanical—while projecting imagined or anticipated futures of use. This temporal duality embeds hidden value systems within the broader field of interpretation.

FOURTH, images increasingly function as design projects. In a hybrid material-digital reality, images simulate objects and environments, transforming perception into a form of modelling. Through AI and CAD/CAM systems, images can move from representation to material realisation, becoming prototypes or "memories of the future."

FIFTH, images contain proportional and compositional systems often imperceptible to viewers. These underlying structures (spatial dimension, composition, metaphoric allusions, etc.) intensify or mask meanings and may generate unintended associations.

FINALLY, spatial images embed geometric projection systems—such as perspective, isometry, or axonometry—that shape interpretation through point of view. This epistemology of spatial construction further anchors the image as an autonomous, meaning-generating force in digital culture.

The complexity of multimodality in mainstream AI systems is clearly visible. ChatGPT is not particularly strong in image production, and Midjourney remains difficult to guide through natural-language prompts. Translation between text and image therefore remains challenging. At the same time, a relatively recent entrant—Google DeepMind's Gemini 2.5 Flash Image AI model, released in August 2025 and called Nano Banana, operates precisely at the intersection of text and image. It has also been developed with architecture and design applications in mind, thus presenting a potential challenge to both professions.

This approach proposes to compare and use different design languages in architectural practice and education. One of these languages is emerging AI in its various formats. Comparing architectural design languages with one another and with similar projects across time will inform us how this new paradigm evolves and how the architectural profession can make the best use of it.

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CASE STUDY #1

Status Quo 2024: Drawing Architecture

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CONTEXT, AIMS, AND SCOPE

Estonian Association of Architects aimed to test and describe the current situation in rapidly developing design languages and to find the status quo in digital technologies influencing the future work of architecture. The outcome was designed to be a series of CPD podcast courses for young professionals and master's students. The design processes in architecture and planning are changing rapidly. The first major disruption appeared in mainstream design technologies around 2000 with rapid digitalisation and automation in ICT. The second is emerging with the rapid development of Artificial Intelligence in language modelling and image creation. One can suspect that this will bring forward the Fourth Technological Revolution. The workshop consisted of two parts: expert opinions and discussions on the program and testing of design languages.

PROCESS

To advance our knowledge in different design languages and establish the baseline to work further with more speculative approaches, an experimental workshop was designed. It consisted of four different design languages for an urban planning task.

The language domains were:

1. Current design practice in an architectural office with mainstream design software.
2. An archaic design language of hand-drawn plans, sketches, and other representational images.
3. AR and VR led design language using the latest digital software (fig. 2).
4. AI-assisted design language using text prompts and language modelling.

All the teams (two-three persons), except for the AI language domain, were professional architects and planners. The AI-assisted team consisted of people advanced in software and computational models, but having no professional knowledge in planning and architecture. The workshop set out to compare the professional design languages with the non-professional AI assisted designs in order to establish how exposed the

professions of architect and planner are to the technological development at the present moment.

The site of the workshop was in Tallinn. It was railway territory that had previously been used for storing freight carriages and trains. The territory is currently under consideration for further development. No master plan has yet been initiated. The secondary outcome of the workshop were the preliminary sketches for Estonian Railways, which is the current owner of the property.

The site is approximately 385,000 m². Existing and reconstructed building stock covers the area of 75,000 m². These are the edges of the planned site. The potential green corridor area is approximately 60,000 m². If needed, this can be extended. The new territory planned for new uses is about 250,000 m². The FAR is between 0.6-1.4, depending on the urban design and usage. There should be at least one property for a large scale public building of approximately 10,000 m².

OUTCOMES

The preparatory discussions with experts created an awareness of the tasks within the planning domain of a densely built existing city fabric. The workshop lectures formed the backbone for the various design work. The different possibilities of the design languages were explored, especially the archaic and the futuristic, against the background of mainstream design practices.

The baseline of different design languages was established. With the development of the Fourth Technological Revolution, the next iterations of the brief and tasks will reflect how fast the design processes will evolve and change, which is important for educators and practitioners and may signal speculative future changes in the work of architects and planners.

The workshop also included experimentation with image-generating AI (Midjourney 6.0 and 7.0) to establish the possibilities and constraints for design work in architecture (fig. 3).

A set of podcasts was edited and published as CPD lectures on the EAA website (Soolep 2024).

REFLECTION

The workshop provided an opportunity to test existing and future design languages in architecture. The current traditional and archaic design languages maintain their position. They still produce satisfactory results and are likely to remain usable in the near future. The immersive and automated languages are radically different and produce a markedly different visual approach. The technologies of XR, AR, and AI are developing fast, but the practical usage is not yet widely adaptable at the mainstream level.

The experimentation with image generating AI promises automation of architectural and interior design within the coming years. It can be strongly recommended to use comparative evaluation of different design languages in different technologies to check when the new paradigm of technology will become overwhelming. In this very moment it holds against the predictions of abolishing the future work of architecture. The results do not support predictions about the disappearance of architectural work proposed in studies on AI-driven automation (Felten, Raj, and Seamans 2023).

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fig. 2.
VR testing of planning proposal.
Courtesy of Jüri Soolep.

fig. 3.
AI generated automatic planning proposal.
Courtesy of Jüri Soolep.

Transport Tycoon 2025, Harju County

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CONTEXT, AIMS, AND SCOPE

The Situation Rooms approach was designed by ELISAVA in Barcelona. It was built as a situation room-based game format. The aim was to develop design briefs on the topic: the Future of Inhabitation in the local context from the perspective of temporality as the main design strategy. The EAA workshop was the second iteration of the Situation Rooms approach game played in Barcelona. The game scenario was adapted by experts for professionals and localised in Harju County (Harjumaa)—the metropolitan area around the Estonian capital, Tallinn (fig. 4 and 5). The outcome was designed to be a CPD workshop for young professionals and master's students. The topic of interest had been derived from the development strategy of Harju County—the reduction of pendulum traffic of private cars between the centre of Tallinn and the peripheral county suburbs. The topic of interest is an acute problem of movement concerning the movement of people and goods:

- The transportation system of Tallinn city and Harju County is uneven, laterally disconnected and centre-driven toward Tallinn.
- The transportation system consists of private car traffic, public bus, and rail traffic. These three systems do not form a unified and coherent transportation network.
- The different transport systems do not interact smoothly: the park and drive system is not evenly developed, and bus and rail systems operate largely independently.

PROCESS

The context was defined on a map of Harju County divided into 81 territorial units. Testing and visualizing future urban scenarios was designed to give Tallinn and the surrounding counties a better insight into how to harmonise territory and connectivity, how to create new urban nodes and development areas, and how to organise mutually beneficial exchange between the city and the metropolitan area.

The aim of the game was to reduce pendulum traffic of private cars and to stimulate discussion about public transport and its necessities in different areas of Harju County.

The game was designed as follows:

1. The game board

The basis of the game is the board—a map of Harju County structured according to longitude and latitude coordinates. The game board takes into consideration patterns of habitation density and orientation to the Tallinn metropolitan area. The board is divided into a 9 by 9 grid covering the main territory. The main game nodes are called: Aruküla, Saku, and Harku (East, Middle, and West). The main grid is divided into 81 arbitrary territories that form the playable cards.

2. Definition of playable game cards

- Territorial cards (72) including six main node cards (delivered at the beginning of the game to the experts). The expert nodes to be played are Aruküla, Saku, and Harku, covering Harju County evenly.
- Hypothesis cards (9) governing different development scenarios.
- Wild cards (3 + 3) governing positive and negative modifiers.

3. Objective of the game

- Three teams compete to use the minimum time to travel between locations. The routes and locations are selected by chance. The routes include a starting point, an end point, and two places in between.
- The cards are drawn one after another and discussed and exchanged. Only open routes that are covered by territorial cards on the base plan can be used for travel.
- During the competition, teams mapped and documented traffic networks and made suggestions for new connections.
- Through competition, teams tested the existing traffic networks and produced final recommendations.

The result took the form of planning proposal and recommendations for a unified transportation system. Research was formulated as a planning brief and expert input.

OUTCOMES

The preparatory discussions with experts created awareness of existing planning proposals and transport networks, which were activated with unexpected obstacles and enhancements. The game was played four times. The result was defined as a set of planning recommendations for a unified transportation system. Research within the game setting included testing different systems within a real-time framework. This proved illuminating, as problems that might be expected in general were presented in a clear and visible format. Several proposals of a strategic nature were formulated to advance and harmonise different traffic and spatial networks.

Game-based practice in the situation room setting fostered lateral thinking to explore novel ways of addressing design opportunities within the chosen topic and context. Unexpected possibilities and obstacles (business developments, new transport channels, stationary and dynamic "Godzilla," etc.) forced participants to investigate different connections between different transport layers. Testing exposed unexpected travel routes. Several proposals emerging from the game experience distilled the findings into conceptual design proposals with the potential to trigger positive changes in the future.

fig. 4. and 5.
The game has started.
Courtesy of Jüri Soolep.


Transport Tycoon
Tallinn Metropolitan!
Tallinn
Lubja
Haabneeme
Randvere
Miiduranna
Viimsi
Pärnamäe
Metsakasti
Muuga
Äigrumäe
Pirita
Laiaküla
Merikula
Muraste
Ilmandu
Põhja-Tallinna
Iru
Nehatu
Kesklinna
Lasnamäe
Loo
Veneküla
Sõrve
Tabasalu
Tiskre
Haabersti
Harkujärve
Liikva
Laabi
Soodevahe
Ülejõe
Lagedi
Vatsla
Peetri
Rae
Vahi
Hüüru
Järveküla
Assaku
Karla
Uuesalu
Alliku
Kütke
Kangru
Koidu
Laagri
Kurna
Maidla
Tanassilma
Männiku
Luige
Vaela
Vanamõisa
Kumna
Tutermaa
Saue
Jälgimäe
Tammemäe
Mõisaküla
Sausti
Kiili
Valingu
Aila
Saku
Saustinõmme
Jõgisoo
Rahula
Üksnurme
Kajamaa
Lokuti
Kasemetsa
Sookaera
Lahtse
Paekna
Nabala
Sookaera-Metsanurga
Tõdva
Metsanurme
Kirdalu
Arusta
Kurevere
Piissoo
Väana
Vaila
Tuula
Koppelmaa
Pällu
Ääsmäe
Kiisa
Tagadi
Roobuka
Kurtna
Maidla
Aespa
Muusika
Tagametsa
Tammiku

GUIDELINES AND CHALLENGES

The approaches described in this book predate the SUrF project, with some having been in practice for several years. The project's premise, however, was to refine, test, and systematise these approaches, documenting them in a format that enables other educators and practitioners to adopt, adapt, and apply them within diverse contexts. In this book, we summarise our main reflections: what we have learned, how these approaches can be used, and how they might be further developed in practice, particularly in the context of design education.

Most approaches are conceived as single-term academic projects, aligned with the slower dynamics of university semesters, typically ranging from one week to six months. However, they can also be adapted to non-institutional, intensive workshop formats, as well as to longer research frameworks such as doctoral dissertations. Such adaptations require careful attention to both process and outcomes in order to preserve the core aims of the approach. In particular, they demand clear, direct communication and precise specification of deliverables, especially under tighter time constraints.

The theme of each project remains flexible and may be defined by the educator or selected by the students themselves. This decision significantly shapes the scope and duration of the research and enquiry phase and steers the overall process. The goals, aims, and ambitions should be clearly articulated at the outset to provide students with a strong sense of direction. The introductory framing plays a crucial role in situating the approach and preparing participants to think critically without prescribing a singular perspective—encouraging incisiveness without requiring prior expertise. This is particularly important for approaches grounded in local context and community collaboration, where students may lack pre-existing relationships with the people or places involved.

Group work is the dominant mode of practice in this field, as projects are situated and engage with complex themes. Many approaches prioritise interdisciplinary collaboration, opening the process to multiple, pluriversal perspectives. In short-term formats, group work requires additional effort to establish cohesion within limited timeframes—for instance, when collaboratively developing a brief. The approaches presented here have proven effective as shared platforms for dialogue and collaboration among students from diverse backgrounds and areas of design. Moreover, the different modes of group work explored move beyond consensus, instead embracing productive conflict and dissent as creative practices that generate emergent, choral responses. Alongside fostering innovative design outcomes, these experimental approaches also challenge traditional notions of authorship and test new forms of collective engagement.

Since many students are not familiar with critical and speculative approaches, close supervision remains essential throughout the process. Multidisciplinary input from lecturers and facilitators enriches the dialogue and can expand the methodological scope. The key challenge is shifting participants away from problem-solving to problem finding and framing. Adding elements of friction (slowness, speed, pauses, accidents, obstructions, or breaks) discourages students from proposing solutions before considering the context and reflecting on the implications of their choices. This invites students to imagine, speculate, and shape stories about the future that critically reflect on the present. Allowing greater depth and flexibility in the process, the outcomes may foster a wider diversity of responses and creative directions.

All design approaches presented share a transformative ethos. In different and complementary ways, they address complex problems of our present through speculative lenses in order to imagine, conceptualise, or test change-oriented design responses. The main aim of the approaches presented is to develop a pedagogical framework for critical and speculative design in (or for) transitions.

The following guidelines synthesise key insights from the approaches presented, offering practical directions for their implementation and adaptation in diverse educational contexts.

EMPHASISE DESIGN RELEVANCE

Articulate why the approach has broad design implications and is relevant to contemporary design issues.

FOSTER INTERDISCIPLINARY AND CROSS-DISCIPLINARY SUPERVISION

Recognise that design itself is not a unified field but a constellation of disciplinary traditions with distinct methods and epistemologies. Acknowledge and work with these differences by encouraging dialogue and productive friction between design disciplines.

WORK COLLABORATIVELY

Whenever possible, include supervisors or collaborators with backgrounds related to the project or theme—both in terms of disciplinary knowledge (e.g., science, humanities) and process-oriented skills (e.g., storytelling, scriptwriting).

MAP KEY STAKEHOLDERS
Map all relevant stakeholders within the project scope, including those associated with major tensions or points of contestation.

SITUATEDNESS
Consider how to incorporate local experiences and explore models of participatory engagement or, at a minimum, community involvement in the evaluation process and in generating guidelines for future iterations.

CLARIFY CONCEPTS
Clearly define key concepts and support them with detailed guidelines and relevant case studies. Accompany challenging theoretical content with examples that clearly connect to design concerns.

AVOID SUPERFICIAL SOLUTIONS
Introduce elements of friction to avoid rushing to solutions and encourage students to imagine, speculate, and shape stories about the future. Develop strategies to help students move beyond surface-level responses that result from limited contextual knowledge.

LEARN FROM MISTAKES
AND ENCOURAGE CROSS-POLLINATION
Be critical of conventional decision-making processes and be open to exploring mistakes rather than shunning them as inconsequential. Encourage cross-pollination between students, disciplines, skill sets, and values.

CLARIFY DELIVERABLES
Explain the rationale behind specific requirements for the project deliverables and the value of such constraints in streamlining production and final presentations.

CONSIDER PUBLIC RECEPTION
IN THE FINAL PHASE
The final communication stage of the project should shift attention towards how the public might perceive or respond to the speculative outcomes, rather than focusing solely on the internal logic of the story or object.