METIS FORM FOR COMPLETION

AFTER COMPLETION TO BE HANDED IN WITH THE CONCERNING PUBLICATION TO THE SECRETARY OF THE CHAIR.

Name: LEE, Sang
Chair: Public Building
Title of the publication: Performance-Critical Architecture and Umwelt in Anthropocene
Handed in on: 7 Oct. 2015

○ Online journal
○ Journal
○ Dissertation
○ Book
X Conference Proceedings (Refereed)


○ Editorship
○ Miscellaneous type:
  □ interview
  □ internal report
  □ external rapport
  □ image
  □ map
  □ lecture
  □ inaugural lecture
  □ poster
  □ technical documentation
  □ video
  □ website
  □ URL
  □ exhibition
  □ other
Computational Ecologies: Design in the Anthropocene

PROCEEDINGS OF THE 35TH ANNUAL CONFERENCE OF THE ASSOCIATION FOR COMPUTER AIDED DESIGN IN ARCHITECTURE

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OCTOBER 19–25
CINCINNATI, OHIO

Proceedings of the 35th Annual Conference of the Association for Computer Aided Design in Architecture
The performance of architecture arises from and expresses the convergence of material, form, intent, and purpose in the human-specific construct of living environment. The ecologies of any given Umwelt comprise attractors, repellers, and commensurate interdependencies. One Umwelt is “attuned” with and depends on other Umwelten and the physios of this planet. In the context of such interdependencies, computational technologies have provided explosive impetus behind how we construct the human Umwelt. The computational technologies have proven all the more compelling as they have altered our aesthetic sensibilities, the way we perceive and understand our self and the world around us. The notion of Anthropocene designates the irreversible impact the human Umwelt, driven by technics and technologies, has exerted on the very disposition of Earth, as well as on all other species’ Umwelten on the planet. The design and architecture of the human Umwelt underlie the conditions that exemplify Anthropocene.

Even though efficiency and conservation have proven crucial to our material culture and to the efforts to sustain it, the performance-critical dimension of human construct – a thorough conflation of efficiency and conservation – requires closer attention: How to practice optimal technics that help maximize performance while minimizing material and energy expenditure. This performance-criticality also includes attuning the human Umwelt to other kinds of Umwelten and how we employ what kind of materials and techniques for which purpose. Performance-critical architecture should situate design intent, materiality, technic, and purpose within various Umwelten, not just within our own. The human Umwelt is inevitably entangled with other kinds of ontologies and Umwelten. In this entanglement, the human subjects live their individual worlds grounded on complex perceptual relations that are both autonomic and cognitive.

Computational apparatization and digital reproducibility and variability have disrupted the body-media instantiation congruity that used to identify the work of an architect or an artist. Digital reproducibility and variability afforded by programmable computational apparatizes produces the kind of aesthetic work that supersedes actual ontologies of both material disposition and human cognition. Through such apparatizes, the media about a thing have come to surpass the thing itself. Design and architecture as part of the human Umwelt set up its own regime of indexicality and agency that is bracketed by the relations of dominant dispositifs (of ideology, politics, culture, economy, etc.)

The regime includes not only objects and places, but also, and more significantly, the relations of semiospheres or meaningful bubbles that signify and connect human subjects, as well as other non-human entities. Computational apparatus-centricity and eventual apparatization has produced a new kind of human Umwelt in which affectation precedes material ontology. The development of computational apparatizes and most notably the W3 codification bring us ever closer to ubiquitous computing and with it, ubiquitous affectation. Ubiquitous computing and affectation agglomerate new kind of semiospheres and power dispositifs.

Contrary to the techno-optimism in architecture and design, apparatization increasingly serves the affective desires and phantasmagoria of culture industries, while the performance- and purpose-specific thing-ness is turned increasingly flimsy and disposable. Digital technologies have promoted not only the avant-garde impetuses of architecture, but also relentless affectation and commodification that contribute to fictionalizing the sense of subjectivity, authorial autonomy, and so-called progress. Embodied virtuality through/by apparatization has made perception override actuality. The sensorial and cognitive dispositifs increasingly privilege the virtual beyond the actual. The actual thing neither catches up with nor lives up to the promise of the virtual. Our sense of human Umwelt has been detached from actualities. According to Slavoj Zizek, “The ultimate perverse vision of the human body is that of a collection of organs as in those unique utopian moments of hard-core pornography.” Our Umwelt is thus “transformed into a multitude of ‘organs without a body, machines of jouissance’…" into the Orgasmatron, into the Excessive Machine.

Each ideo-technic instance in human history originates from and feeds back the activities and material production of a given enculturating milieu. Each ideo-technic dispositif affects how the social and cultural participates subscribe to the enculturization process that the technomic apparatizes initiate. During the socio- and ideo-technic flows of computation – from 1991 to roughly 2004 and 2004 to date, respectively, I would propose – the digital apparatizes have been deployed and embedded intimately in human activities. They have rapidly aestheticized (or ideo-technicized) information, commerce, socialization, and inevitably, power and control. The technomic computational apparatizes that first augmented the human labor of designing and producing media for the human Umwelt have been increasingly directed to fabricating cognition and sense of experience. The apparatus-centric authenticity commands its own authority intensely aimed at providing a sense of aesthetic experience detached from thing-ness.

The Internet and the W3 codification, a socio-technic class of computational technologies, made possible intermodal content design, production, exchange, and distribution. The intermodality helps fabricate and proliferate the sense of experience that reinforces and tribalizes human interactions, more often than not in order to empower the value systems of dominant dispositifs. The digital apparatizes and infrastructure help produce highly affective media of everything everywhere augmented by and embedded in virtual content and endless propagation. The ideo-technic class of computational

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apparatuses reinforces the dominant dispositifs to manufacture desirable semiosis. Such manufactured semiosis envelopes us into accepting what we see/hear is what we want. It often results in delusional (or visionary, depending on the point of view) and relentless stylizing that serves cognitive capitalism. The computational modeling and aestheticization reinforce manufacture of perception of what we may consider real, and promote affects that induce a sense of realism so visceral that we embody the experience. The visceral sense of experience of a thing has become more important that the thing itself.

Architecture is caught in the intersection of various apparatus-centric dependencies that supplant what has been historically regarded as its disciplinary core. The semiosis of architecture caught in such dependencies no longer privilege compartmentalized and stratified historical elements. More importantly, the apparatus-centric semiosis underscores the means (i.e. the conventions that have been built over time to codify the practice and purpose of architecture, or simply the way it was supposed to be done, according to the traditions of inherited practice) by which architecture as a discipline has conceptualized, instantiated and managed the work in relation to the dominant dispositifs. With intermodal, apparatus-centric processes, techê and teknê have diverged. Architecture has turned to encoding and apparatusation. The authenticity (and fate) of a given architectural work now largely depends on the kind of apparatuses an architect relies on and shares with others in the process of producing semiosis and ideo-technization. The apparatus, codification systems, and ensuing semiosis define the apparatus-centricity of human Umwelt and underlie the generative potentials of computational ecologies.

The apparatusation process has indeed created “a new field of rationality” for architecture. It provides novel instruments and techniques with new novel aesthetic and ideological authority about/over built objects and environments. The site of architecture has always been cognitive, a fabricated perception plotting the “relations of proximity between points and elements” with or without the substance of actual localities. The new technological apparatus was supposed to radicalize and fulfill the promise of the modern. However, through computational techê, a new class of perceptual and cognitive apparatuses and intermodality, as well as the new kind of operators, intensify the manufacture of new forms of desire, allure, and enchantment. Thus, architecture as “… object-event, almost imperceptible among so many others, should recopy, fragment, repeat, simulate and replicate itself, and finally disappear without the person who happened to produce it ever being able to claim the right to be its master…”

Functional scaffolding of identities and differences produces and organizes knowledge systems. Such scaffolding and by extension bracketing are constructed according to complexity, from the simple to the complex, and according to scalability, from small to big, rather than in terms of (re)semblance and tolerance of deviation, the precomputational traits. Through the media apparatus, architects have participated in the ordering of the multiplicities and complexities arising from various human and material factors. Such apparatusation emphasizes the non-sensuous, extra-somatic relations of the dominant dispositifs, as well as disengages the discipline from its inherited relations based on similarities, affinities, and analogies.

Apparatusation and aggregation of functionalities along the scheme of flexible accumulation entail incremental development based on variation, permutation, and (re)combination. Parsing and versioning have become the most crucial process of composition. In the meantime, pervasive apparatusation neutralizes mediatic specificity and authenticity through intermodal codification systems that make the collectivity of apparatuses fluid and more horizontally distributed across different kinds of physical-material assemblies (the hardware). What used to be known as the substrate in a historical sense (the Roman wax tablet, papyrus, parchment, paper, acetate film, etc.), no longer connects with particular content. Markup languages and the contents they bracket rule the world. One kind of content may, in fact must, be transcribed and transformed on demand into another kind, change shape, distributed, and sold ubiquitously.

Architectural work has been and still is inevitably subject to the power relations within an ensemble of cultural, political, and economic dispositifs. This ensemble of discourses determines the manner and disposition of spatializing, objectifying, ordering, organizing, and managing diversity of the biological constituents, and ultimately the so-called “nature.” This bio-spatializing by computational semiospheric apparatuses claims the appearance of meaning, usefulness, and value. Because of the partitioning and distributing within the relational bio-spatializing, individuals (people, animals, plants, objects both natural and artificial, places, etc.) are no longer classified and fixed in place. Nor are they projective-projected. Instead they are interchangeably organized, unitized, quantified, monitored, and evaluated in rank, proximity, and frequency, as well as in complexity and (re)semblance: the spreadsheet of everyone, everything, everywhere, all the time.

The information-data involved in the control and management of individuals also express the organizational logic of the given dispositifs. Information-data augment the power-space of the dominant dispositifs and legitimize the systematic production—or fabricating, depending on the viewpoint—of knowledge and sublime. Such modalities of the spatializing and spatialized power-dispositifs arise from the pervasive implementation of technology, technological instrumentation, encoding, and media. The ontology of the thing depends on the information, data, and media about the thing. As Giorgio Agamben claims, the information-data, and ultimately knowledge, apparatuses may offer no right or wrong way of use, but only subjectification. It symbolizes the content that is increasingly separated and detached from performativity. Computational apparatuses and their performance are relentlessly aestheticized and even purported to be magical and even alchemical: “the technological reproduction, alteration, and reassembly of signifying elements in high tech becomes less a means to an end than an artistic-cultural process that has become an end in itself.”
Industrialization has brought rationalized means and ends, technologicalization of aesthetic objects and experience, as well as aestheticization of technological objects and use. Owing to the highly discrete mediation, mediatization, and (re)production, computational technology and its codification systems are also concentrated on providing aesthetic experiences that do not appear standardized or identical from one to the other. Furthermore, aestheticizing and fetishizing the apparatus itself stand for the sense of individual uniqueness, authenticity, and more importantly, of empowerment. The computational semiospheres and their ecologies show us that we live in an ideotechnic space of aggregating semiospheres that expand, contract, and at times coalesce. The question is where the material onto-logic of our Umwelt stand.

Digital technology and the formation of algorithmic ecologies (e.g., Google, Facebook, Twitter, LinkedIn, etc.) not only dislocated the privileged position of both cognitive and expressive aesthetic production, but also autonomously encode and perpetuate fragmentation, recontextualization, reproduction, mutation, scaling, and re-creation. In the end, aggregate computational encodings become entangled with one another and codified toward embodying highly aestheticized experience for relentless profit. The computational semiospheres and their ecologies show us that we live in an ideo-technic aura in regard to then mechanical reproducibility. The computational apparatuses not only serve as instrumental and functional, but also autonomously encode and perpetuate fragmentation, recontextualization, reproduction, mutation, scaling, and re-creation. In the end, aggregate computational encodings become entangled with one another and codified toward embodying highly aestheticized experience for relentless profit. The free space, if such a condition still exists at all, will be indeed not only slower, but also boring...

The digital apparatus and codification, and the greatly expanded dispositifs have radically altered the subject-object relationship and the human Umwelt. The very innovations in tooling and instrumentation have brought forth profound changes to human tendencies, to human relationships, and to human ontologies in both perceptual and cognitive terms. The new subject-object relationship consists of the ways and states in which we have surrounded ourselves with extra-somatic instrumentality and agency, and how the extra-somatic bind us in various levels of dependencies. The construct of human Umwelt that underlies the notion of Anthropocene consists of not only humans and their tectonic assemblages, but also non-human entities that increasingly command a more substantive position. The extra-somatic, technological collapsing -- of the visual and the aural; of speech and writing; of here and there; of now and then; of he, she, and it; of various realities and truths; and so forth -- constructs the space of disembodied synaesthesia.

Our very sense of self and actualization requires objects that stand in front of us in our face, die Gegenstände. The poiesis and semiosis of our being are embodied in them. We are autonomically predisposed to need, want, invent, and produce them: no mind over matter; I am what I want; Voilà, ergo sum. We would defend and safeguard our things with our life. We would kill for them. Our Gegenstände define our human Umwelt and affect others in a more destructive way than not. We have actively participated in the relationship with Gegenstände and shored up our Umwelt to the point where the subject-object symmetry -- if such a condition has existed at all -- can no longer be viable. The question is how computational ecologies will help us situate our place in Umwelten and how the new construct of such ecologies will help us renovate, reform, and overcome human subjectivity that is narrowly delineated by the anthropocentric worldview. Thus, the design and architecture of such ecologies will determine the ethos of human Umwelt and ultimately the disposition of its sedimentation in Anthropocene.

It is crucial for us to examine and understand the relations -- both autonomic and extra-somatic -- of human technê and Umwelt in a context that includes the non-human Umwelten and especially the position of our Gegenstände. It is crucial for us to situate clearly how human life is attuned to other living beings. The classical notion of technê has in essence expressed the human-specific Umwelt-making. Technê embodies the nature of human material culture and its potential sustainability. The intimate relations among the causalities of technê and the human Umwelt must overcome aesthetic and authorial ontology that is focused on affect. Performance critical architecture addresses the very crucial point of what we may learn from biosemiosis-as-technê: Every living being is intimately attached to its environment and dependent on other beings in the most efficient and direct way possible in order to sustain and proliferate life. Thus we have a compelling question: How can we prevail over the ideotechnicization of the human living and humanist ideals that continue to intensify the anthropocentric worldview and ensuring destruction that includes the human Umwelt itself?

Understanding the ecologies of other Umwelten makes us recognize the delusion of the human-centric worldview that has caused and continues to cause so much destruction and misery for all living beings including ourselves. The faliences of human Umwelt are now by and large driven by sensory technologies. We may no longer conceive, explain, understand, dwell in, and sustain our Umwelt if we continue deluding ourselves into thinking that we the humans occupy the coordinate (0,0), the locus of Descartes’ God and Roi-Soleil, from which all other living beings are ordered, projected, subjectified, consumed, and disposed of.

NOTES
Computational Ecologies: Design in the Anthropocene, seeks to engage a new period of environmental uncertainty by raising the question as to whether architecture should embark on establishing new affiliations beyond the human; a fundamental redefinition of the discipline as something no longer significant for “us” alone. If the Anthropocene has ushered in a new era of existential threat for human civilization, how does architecture not only rethink conventional forms of “program,” and by extension “performance,” privileging nonhuman alongside human forms of “use,” but a new material, formal, and spatial aesthetics as well?