digital*futures*

defining digital discourse

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In order to configure a necessary infrastructure for discourse on digital futures, we must engage in the hard work of clarifying emergent trends in architecture directly resulting from the influences of digital technology. This paper aims at addressing the necessity for a rigorous and clearly defined infrastructure in the emerging area of digital architecture. A series of critical interrogations results from an examination of relevant literature of which it is intended to frame the discourse on the subject of digital architecture. Some final questions and projections will be offered as a call for future research and pedagogical strategies amongst digitally minded organizations.

(digital)discourse, (digital)architecture, (digital)design, (digital)skills, (digital)principles

Digital futures: new ideas in architecture

Architecture is presently engaged in an impatient search for solutions to critical questions about the nature and the identity of the discipline. Disciplinary edges in architecture have been blurred, which makes many nervous, because we can't clearly see what lies ahead. Simultaneously, digital tools have become the catalyst for exchange of new ideas in architecture. It is not quite clear if the computer has forced this inquiry, or if it is merely responding to evolving ideas in architecture, or even society. Bernard Tschumi asserts that computers were purposely integrated into the laboratory studio culture at Columbia University to address the immediate issues of the emerging digital age; "digital technology was conceptualized as a mode of thinking about architecture rather than as a simple drafting machine." And, "for many faculty members, teaching, research, and practice merged into an integrated process that additionally permitted them to develop their own work in a creative manner." (Tschumi, 2003). In this sense, the computer was encouraged as a device for experimentation on ideas at all levels of architectural thinking. Initial experimentation resulted in changing foci and critically examining **new ideas**. Alternatively, perhaps digital architecture is the logical byproduct of the first grid shift that seeded the desire for entirely new formal languages, and ultimately new ways of thinking about design and the world. Either way, digital technology is a key agent for the prevailing changes in the discipline of architecture. Although, this is really nothing new, as new technology *has always been* a catalyst for new ideas in architecture.

As we look to the centers of digital activity, it becomes clear that some institutions rise above all others in their ability to address an entire culture (and range of conversations) about digital architecture. Certainly, projects that have emerged from teachers and studios at digitally prolific schools similar to Columbia and the ETH in Zurich. These schools have had an enormous influence on the shapes of these **new ideas** in architecture. As many of the projections and graduates of these centers disseminate, a slow, and at times awkward, scratching at the surface, and culture of digital change has been seeded at most institutions around the world. In this fashion, digital technology will inevitably change architecture, for right or wrong. The question we need to rigorously ask is: *how* will digital technology continue to transform architecture?

Digital architecture: a critical dimension

In the pre-dawn of the digital culture shift in architecture, John Hedjuk argued that, "[Architecture] must also put reality into a frame [and that] the so-called reality is transformed." (Hedjuk, 1985) In this sense, today, [architecture] is a medium through which we can understand our changing digital culture(s). But, as soon as we frame that reality it shifts as we become immersed in both the frame and the framed.

Digital technology is in global systems, urban environments, media, automobiles, appliances, devices, bodies, Our daily lives surround us with mediated images of digital culture, constant communication, and continuous data flow. Can we really define an emerging "digital architecture" when society already is already permeated with digital technology? Are we merely framing that which is already around us, or are we projecting our ideas into some collective digital future? Using digital technology doesn't necessarily constitute creating digital architecture. Ideas are still scrutinized by the author(s), albeit with the computer serving as an agent. Thus, responsibility for a critical dimension still falls upon the author. Just as there is a difference between building and architecture, there is a distinct difference between digitally generated projects and digital architecture.

Projects such as the FEIDAD are instrumental in the formulation of a critical network of projects that stand up to the distinction of digital architecture. In the book exhibition of 2001 FEIDAD work, computationally generated complexities engender a relationship of projected materiality and untouchable immateriality. To frame this issue, Yu-Tung Liu points to digital technology as facilitating "totally unlimited free-form thinking" as a result of the dialogue of "mental, physical, and digital-virtual space" (LIU, 2002). The majority of the projects have transformed the physical bystander into a participant by suggesting new paradigms of interactivity and connectivity. This kind of digital projection strategy communicates ideas with a critical edge that are a direct result of designers fully exploiting the very nature of digital technology and using it, as Tschumi put it, as a "mode of thinking about architecture" (Tschumi, 2003). Further, once you have begun to engage digital architecture by entering this mode of thinking, your devices shift, and your reality is transformed into a digitally augmented hyper-reality.

Digital discourse: or blurred disciplinary boundaries

The most productive digital projections talk of blurred disciplinary boundaries. Maia Engeli suggests, "blurring boundaries is about pushing the frontier to detect new fields and directions where acquired expertise can unfold new potential." (Engeli, 2001). Now is the time for rhetorical clarity about these "new fields". The significant convergence of digital technology and contemporary culture has forever transformed the ways in which we think about architecture. Architecture contemplating this convergence is an architecture aligned with the spirit of our age. Similarly stated by Mies Van der Rohe in 1950:

"Architecture depends upon its time. It is the crystallization of its inner structure, the slow unfolding of its form. That is the reason why technology and architecture are so closely related. Our real hope is that they will grow together, that some day the one will be the expression of the other. Only then will we have an architecture worthy of its name: architecture as a true symbol of our time."

Healthy disciplines remain tolerant of a state of flux by constantly questioning the inclusion/exclusion, import/export, and collaboration/isolation to/from new ideas, new techniques, new disciplines, and new technology. Peter Zellner laid the groundwork for a discussion of this "evolutionary" architectural exchange by identifying the key players as "experimental architects, deploying novel hard (manufacturing and material) and soft (digital) technologies to engender an architecture of incorporation and conjunction, to test the radical generative and creative potential made possible through computer applications" (Zellner, 1999). At the perimeter of this nebulous exchange, an innovative digital discourse has surfaced that serves as a conduit to an attentive discipline of architecture. As a result, the symbol of our time is becoming more defined in rapidly shifting instances of clarity.

The ACADIA2002 DDE (Digital Design Exhibition) was created to provide a momentary frame for projections of digital architecture. Already, in the space of one year it is ready for an upgrade. The sub-categories of digital design in this instance, although not distinct, were New Media, Fabrication, Film, Interface Design, Information Design, and Hybrid Architecture. This was an initial attempt at framing categories of Digital Design, and while it met with great success both in participation and exhibition, the DDE feel short of the necessary work in identifying underlying principles evident across categories in digital architecture.

Digital principles

We must invent new languages to continue this conversation about digital architecture on any meaningful level. Is this morph better than that warp? Does the tool path limit the density of the ripple? Did I choose a suitable instance for freezing the motion-animated surface? "Terms such as beauty, scale, and proportion that were once used to describe the massing, articulation, and texture of pre-digital architecture have given way to adjectives like smooth, supple, and morphed, derived from digital-age vernacular" (Rosa, 2001). Many of the new digital nouns, verbs, and adjectives borrow terms and reflect qualities specific to the jargon of the digital tools we use. However, a clear and critical definition of new principles has yet to materialize in a clear way. Perhaps clarity, an already archaic term is unachievable today. What we need is a rigorous, yet loose, affiliation of predictable relationships between digital architectures.

Irrespective of language, the activity in which these digital projections come into being are rendered through the lens of a familiar architectural *process*—as a critical problem solving activity that results in projects represented with a rigor and depth of idea and intention. Since languages now are different, what then opens particular aspects of intentions to scrutiny? Principles. Without these principles, many projections remain impenetrable and thus intimidating, or merely "interesting." expect that these principles will emerge from identifiable and distinct digital topic nodes crafted beneath the overarching umbrella identity of "digital architectures."

Topic nodes: requirements for combinations of digital skills

If digital architecture is an emerging special disciplinary focus, then it needs some clarity—or at least some connections that will transfer larger bits of understanding. Under the broad category of digital architecture, **topic nodes** are escalating as sub genres with a particular set common relationships *and* important distinctions from one another. Thus, to be "digital architecture" now requires further specificity such as: *Digital Design, Digital Fabrication, Digital Tools, Digital Data, Digital Information Visualization, Digital Representation, Digital Environments, Digital Culture, Digital Multimedia, Digital New Media,*

Additionally, each topic node requires proficiency with a specific foundation set of **digital skills** such as: *2D Composition, Vector Graphics, Image Manipulation, 3D Modeling: Surface Modeling and Solid Modeling, Video Editing, Motion Graphics, Rendering, Animation, Parametrics, Drafting, Communications, Representation, Presentation, CAM-based Fabrication, Performance Analysis,* and the like.

Framing digital architecture

As society engages in the ecstasy of this information flow, a new kind of mediated interaction rises, and necessitates a new way of formulating architecture for such relations. Effective **digital architecture** should frame, and thus transform these projected realities with a depth of digital skill, ethical rigor and a critical edge. Architects armed with this digital acumen, rigor, and edge will thus be well equipped to make critical [digital architecture] projections as a symbol for our digital futures.

One framing device for digital discourse is to speak about the three potentials for intervention, the physical/material world, the virtual/digital world, and the culturally affected hybrid world. Gerhard Schmitt posits, "Architecture in 2010 will inevitably fall into three classes: physical, virtual, and hybrid [bits and bricks]" (Schmitt, 2001). We will see if these three articulations become the default categories for digital architecture, or if they will be replaced when upgraded version in only a few short years. One thing is for certain, Digital technology is simultaneously the reality and the reality transformed, the medium, as well as the instrument of change. However, the critical dimension, digital skills, and digital principles necessary for digital architecture requires thorough and consistent preparation and rigorous scholarship.

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