Responsive Environments and Adaptive Architectures

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INTRODUCTION // PREMISE

In 1966, Cedric Price began a lecture with the exclamation, "Technology is the answer!" but then soon followed with the clause "...but what was the question?" Two years later Price would develop a proposal for the Fun Palace, a dynamically reconfigurable structure embedded with intelligence, which had the capacity to get bored and recommend alternative spatial configurations. Price’s proposal has undoubtedly proven ahead of its time and his words from 1966 resound just as clearly today. Presently, we see a range of projects engaging in ideas of responsiveness and adaptability from Diller + Scofidio’s Culture Shed to SOMA’s One Ocean Thematic Pavilion. An oppositional critique to this type of work is the long-standing Vitruvian ideal of firmitas, declaring firmness as an essential quality of architecture. This studio proposes alternatives to this ideal by exploring time, change, motion, and transformation by drawing on Sanford Kwinter’s ideas of soft systems. He writes:

Just as Earth is poised between stability and instability - like a child on a bicycle - the stability of the system is rooted in its dynamics, it is capacity to handle and process movement, change, difference --in a word, information [...] A system is ‘soft’ when it is flexible, adaptable, and evolving, when it is complex and maintained by a dense network of active information or feedback loops, or put in a more general way, when a system is able to sustain a certain quotient of sensitive, quasi-random flow. (211)

Drawing on Kwinter’s definition of soft systems and with an awareness of the problematic mechanical systems found in Jean Nouvel’s Institut du Monde Arabe, this studio explores ways in which material based systems might allow for dynamic complexity over kinematic complicatedness.

METHOD

This studio will explore the possibilities of architectural design through the medium of video. It will focus on the ideas of responsive materials and represent those ideas through moving pictures and physical constructs. Students will create their own processes for material manipulation and diagram the boundary between motion and computation. We will investigate the word animation, which comes from the Latin word animare - to instill with life-. Similar to how creating an illusion of movement in animation is central to conveying that something is alive, animation techniques will bring to life emergent approaches for environmental responsiveness, advanced construction processes, and real time human interaction through unique materials systems. We will explore the fundamental concepts of action – reaction and develop a library of both architectural precedents and natural responsive systems. Once students have set their materials into motion and have developed a formal and performative vocabulary, they will design and represent a guiding narrative for potential applications.

Critical questions for the studio will include: What are the ways materials are constrained by how we model or simulate them? How can we rediscover materiality through experimentation, computation, and animation? What are the ways design practice is informed by materials? What are the ways design research can promote a greater understanding of materiality not only to allow us to better employ traditional materials, but also to embrace the possibilities presented by new materials? How might we rethink the rigid, static, and ordered nature of architecture in order to embrace moments of flux, movement, and change? How might time be a primary element of consideration in the discourse architecture not only in terms of representation, but also as a scalar reference for looking forward?