Notes *on imprecision and infidelity*

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Throughout the nearly forty years of ACADIA's history, we have witnessed great strides in the furthering of computational research in architecture and design. The association has gone beyond its initial mission of advocating for computer-aided design. The many researchers, institutions, and industries associated with ACADIA now bridge a growing number of disciplines, fields, and geographical borders. Questioning the conventions of design, construction, and pedagogy, ACADIA now defines how design and computation, when paired with emerging technologies such as artificial intelligence (AI), robotics, adaptive systems, and novel materials can reimagine the built environment, from the scale of a tool or interface to the scale of a building or city.

We have seen the progressive popularization of design computation manifested in the constant struggle for academic institutions to keep up with the technological "arms" race for many reasons. A large part of it rests on the fact that many of the desired technologies necessary for digital fabrication, robotic production, AR/MR/VR, and even 3D printing require expensive tools and advanced knowledge sets not readily available within all academic institutions and even less so within design offices. Such limitations in resources place restrictions on their accessibility to the global design community as a whole, and as such, limit the potential impact of our research.

With this disconnect, over the past decade we have witnessed the rapid emergence of large groups of researchers and academics attempting to move completely away from computation, materials research, technologies, and interdisciplinary collaboration in favor of the pursuit of "pure" design through the use of recycled forms, representation techniques, and design precedence (Carpo 2018). The designers and researchers within this "Neo-Postmodern" movement (as we may call it), many of whom were educated during the era of the paperless studio, are not at fault for desiring change. Over the past decade, especially with today's glossy production quality videos centered around tools such as robotics, it can very easily feel as if design has taken a back seat to technology. To neglect our progress though would be a grave misunderstanding of the achievements of our field over the past four decades, and of the inherent potential that computation, materials research, advanced production, and interdisciplinary research have to redefine the built, augmented, virtual extraterrestrial environments we inhabit now and will inhabit in the future (Carpo 2012; Daas and Wit 2018). Architecture and design cannot afford to be termed luddite disciplines.

As the technical chairs of the 2018 conference, we find this year's theme extremely relevant in not only opening up our research to new audiences and expanding the realms of design and computational research, but also in ACADIA's continued push towards the creation of an open global research community. As an organization and as a body of researchers, we must continue pushing beyond false geographical/cultural barriers proposed by nationalistic individuals, as design, architecture, and the built environment are disciplines transcending all borders; cultural, geographic, and before long, interplanetary. ACADIA's first conference in Mexico will in no doubt expose the organization to new ideas within the realms of physical/digital computing, design, and production, the most prominent of which will be highlighted by the conference theme.

Through this collaboration, we will question and discuss the current positioning of computational design as technologically determinant, habitually precise, and linear/logical by examining the emergence and exploitation of computational follies; in other words, "Computational Infidelities" and "Imprecisions in Materials and Production."

We will discuss how these concepts move beyond pure science, engineering, and technology, offering architectural researchers a new design-driven lens in which materials, computation, production technologies, and data systems

can be viewed, distorted, and implemented as a means of engaging the arts. Through this lens, artifacts, buildings, and environments (both digital and physical) will no longer be defined by computing and/or production technologies, but will rather define the role of technology in architecture through its intended use and misuse. These themes will loosely be defined as follows:

Through the misuse, glitching, reconfiguring, and/or non-standard programming of both computational systems and production machines, "Computational Infidelities" aims to break designers free from the preconceptions, associations, and reliance on deterministic approaches that have been developed around computational design over the past four decades. These infidelities can encourage the redefining of tools and methodologies, allowing for the distorting and merging of computational systems (both digital and physical) and creating a greater variety of design outputs while simultaneously creating greater access to computational tools.

"Imprecision in Materials and Production" looks at the redefining of aesthetics and processes through the use of imprecise materials, tools, and computation techniques as a means of design, affording designers the ability to continue developing novel tools without relying on them as only a means to an end or as the producer of perfect artifacts. In short, the use of these tools as "messy" collaborators, rather than pure producers. Imprecision, iteration, and real-time feedback will allow the process to be fluid yet imprecise, utilizing all aspects of human–machine collaboration.

In this year's proceedings, we will see an unbiased mix of the precise/imprecise and the computationally faithful/unfaithful. The juxtaposition of these projects paints a picture of a broadening computational discourse at the intersection of art and science. Mediating between physical, digital, and mixed realities, ranging in scale from the material to the city, and exploring the limits of design on Earth and beyond, this year's conference will question how ourselves and others view the role of computation, production, and advanced technologies in architecture, design, and the built environment.

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