Introduction: How to Make the Impossible Possible

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The papers from this year's conference remind me of a popular topic in academic architecture circles from the 1990s: how to make the invisible visible. Back then, it was about uncovering hidden patterns, behaviors, and forces using representational tools like recordings, mappings, and diagrams. These methods became so widespread that they are now commonplace in education and practice. Architects used these representations to qualify the form of buildings, yet the validity of designs based on these abstract initial decisions were rarely analyzed post construction. As climate change, social equity, and access to healthcare become increasingly urgent issues, there is a renewed interest for making the invisible visible and even the impossible possible. This time around, architects are leveraging new digital and computational tools to bypass traditional modes of representation in favor of a more active and direct approach that welcomes feedback.

New technologies, like augmented reality headsets, are enabling architects to create at-scale, fully rendered digital objects in real environments. While the previous set of tools was used to represent objects indirectly through notation and orthographic projection, this new form of representation removes the need for any translation. Users can see a 3D model materialize before their eyes, or a dynamic particle simulation flow through an existing environment. Technology has enabled virtual objects to exist in the world independently of the laws that govern them. As Mario Carpo has noted, these "new digital design tools … serve to make something else—something that would not otherwise have been possible."[i]

So what is the difference between the virtual object and the real thing? As far as one's perception is concerned, not much. After all, as Maurice Merleau-Ponty argues, "the perceived world [is] the primary reality" and gives "us the first and truest sense of 'real.'"[ii] To perceive an object is what makes it real; perception is what makes the invisible visible. These objects are presented in full resolution with the physical qualities, textures, and attributes of the things they are meant to become. From our perspective, these virtual objects are just as real as the furniture that surrounds us. The transition from digital representation to digital presentation has shifted "virtual" from a non-being immaterial existence to a new form of being both in and out of the material world.

This freedom—the ability to transcend the laws of nature yet exist within the same space—is the territory explored in this year's proceedings. Augmented reality, and other emerging technologies like automation and artificial intelligence, are entangling the material with the immaterial, forming an even more complex relationship between us, the real world, and the objects we produce. Uprooting the traditional role of drawing in architecture in favor of a virtual incarnation of objects is truly making the invisible visible. By doing so, we might also make the impossible possible and finally achieve some progress on the issues that need our attention the most.

[i.] Mario Carpo, *The Alphabet and the Algorithm* (Cambridge: The MIT Press, 2011), 36.
[ii.] James M. Edie, Introduction to *The Primacy of Perception*, by Maurice Merleau-Ponty (Chicago: Northwestern University Press, 1964), xviii.