Big Data and Computational Specificity

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This year's TxA Emerging Design + Technology proceedings coincide with the release of Mario Carpo's *The Second Digital Turn: Design Beyond Intelligence*. In the book, Carpo describes a new wave of digital projects that reject the smooth, organic forms of the first digital turn in favor of discrete, pixelated ones. The reason for this, he argues, is that with an increase in computational power, we no longer have to generalize a set of data to better describe a *thing*. When architects first began using computers to help generate architectural forms, they used the average of any relevant data they could find to plot smooth, Bézier curves, something 3D modelling programs excelled at. The thought was that these new forms could handle every aspect of a design, whether it be program, function, or effect, simultaneously. What was lost, though, were the outliers, the discrete bits of data that didn't fit neatly into a mathematically derived curve. What was lost, through computational precision, was specificity. Designers were asking computers to do the work of humans (a computer's processing power is often correlated with that of a human brain), rather than the work they are best suited for: sorting through massive amounts of data to find a specific piece of information, regardless of whether or not the data falls within an expected set of values or conditions. By ignoring the extremes of any given data set, we were excluding the very data that could be the most transformative, and in many ways, the most telling. We reduced the project to a world of averages, a world of repetition, where the same was favored over the new. In architectural terms, we were making suburbs.

So, here we are, finally using computers on their terms. Rather than having them classify information into folders and sub-folders within folders, we can leave it alone, in a flat space where all data is equal and accounted for. Amazon moved to this model long ago, when it began storing packages based on size instead of type. Google, as Carpo points out, discovered this even earlier and actually coined the motto, "search don't sort." Our system of classification is outdated, and in many ways antithetical to how technology works. As Carpo notes:

> *Computers can work better and faster when we let them follow a different, nonhuman, postscientific method; and we increasingly find it easier to let computers solve problems in their own way—even when we do not understand what they do or how they do it… Just as the digital revolution of the 1990's (new machines, same old science) begot a new way of making, today's computational revolution (same machines, but a brand new science) is begetting a new way of thinking.**

We are entering an era of big data, and the promise of the information age is finally coming to pass. Technology, now and in the coming years, will transform everything about the way we live, so we might as well embrace it.

The papers in the 2016 proceedings value specification—using all available data—over generalization and outmoded forms of classification. Each of the papers encourages a precise, information-rich approach to architecture and design, with the hope that inclusivity will lead to a better, more accurately calibrated world. The papers deal with discrete, specific bits of information from which projects and new territories unfold, often looking to other disciplines, industries, the academy, or even to politics, to see how this approach might reshape the world, or be reshaped by it.

*Mario Carpo, *The Second Digital Turn: Design Beyond Intelligence* (Cambridge: The MIT Press, 2017), 7.