Interview with Venkatesh Rao

Troy Conrad Therrien

Venkatesh Rao, known to many as @vgr, is a Seattle-based blogger and management consultant who has spent the last ten years applying his doctoral training in engineering to the culture of technology. His series on organizational psychology and the tacit knowledge of digital innovation, as well as the various neologisms, diagrammatic techniques, and maxims he has coined and refined over the years have made him a much sought-after executive coach to the very executives who steer the companies that drive the futures he theorizes. His blog, Ribbonfarm, is dedicated to the practice he calls "refactoring," the use of regular writing to rewire the software of his own mind to better make sense of a world mutating under the accelerating forces of technology. It has spawned a committed community of similarly dense thinkers who have learned the idiosyncratic language of @vgr and continue to refine, reform, and refactor it collectively. Through tweetstorms and essay series and newsletters and Facebook posts and threaded commentaries, @vgr has become a reliable source of new memes, novel cultural insights that he deftly packages for recirculation and reinterpretation through the same technological channels that inspire his observations, from complex social

dynamics like the "Gervais Principle" to dynamite revelations like "premium mediocre," the ballooning of the economy-plus category of life itself in which we celebrate the incremental icing on top of meager rations, to "The Great Weirding," the present condition in the West and elsewhere in which our principal means of making sense of the world have completely collapsed, leaving us without the meaning that allows us to know what to think or feel about the everyday events we experience. Throughout his work, various theories of architecture have surfaced that profit from his lucid understanding of the primary forces driving history today.

Troy Conrad Therrien: I was initially drawn to your work because you weren't just the most novel and precise philosopher of our technological present, but seemed to simultaneously intuit the social power of the metaphor of architecture. That is, "architecture" is not just a classification awarded to our best buildings, but a complex and enduring meme that symbolizes the pinnacle and process of social innovation, the institutionalization of norms, intergenerational memory, the infrastructure required to scale up collective life, and the very concept of solidity itself—all through the image of the edifice. You have systematically dismantled architecture's claim to these social roles by reassigning them to technology through, for instance, essays on hacking, normalization, blockchain, and technical debt and social collapse. I would argue that you have been the most prolific and committed catalyst in the transformation of the dominant cultural metaphor from architecture to computation. If architects are crisis-prone by disposition, you've been a constant source of emergency. I'm hoping you can now help us to pick up the pieces. What new significance might the metaphor of architecture take on now that its carcass has been hollowed out by computation?

Venkatesh Rao: Think phoenix, not carcass. Nothing endures forever, but everything can die and be resurrected indefinitely. That's what it means for an activity to be part of a living consciousness. The only true death and hollowing out is not rising to the imperative of paying mindful attention to what you are doing.

TCT: How might the phoenix of architecture rise again?

VGR: Two paths seem possible, depending primarily on the relationship architecture develops with time in the future.

On the one hand, you might have architecture that becomes part of the circulating material flows of civilization, like fuel or food. Think of this as disposable architecture. Memoryless, atemporal, purely functional and utilitarian, and commoditized. I don't just mean in a literal sense, like modular container homes or buildings that flow from use to use and factory to landfill. I mean in the sense of a programmable substrate out of which all intelligence has migrated to other loci. Vernor Vinge's *Rainbows End* envisions such a future for architecture. Architecture as dumb pipes piping material experiences to our senses, much as dumb cables pipe digital experiences to us today.

On the other hand, architecture might develop a different relationship with time, where it becomes part of the aging of the world and the embodiment of its memories, scars, and relationships with its own nature. The material, nonliving side of a permaculture of sorts. There are pioneers in agriculture today who are rediscovering a very old mode of relating

to land, as a sort of living computational relationship embodied in crops and livestock. Something like that, but for nonliving things. Smart pipes.

Historically, disposable architecture has also been transient architecture: tents, slash-and-burn encampments, and the like. Permaculture architecture has also been enduring architecture: buildings that last long, perhaps for millennia. But durability, while important, is not the critical variable here. The important variable is memory and historicity in relation to computation. I think the permaculture people who think about living systems make a similar mistake sometimes. Biology has no preferred timescale. An ethos of permaculture might inform a very intense and short-term reformatting of a piece of land for instance. You might use some mix of fast-colonizing plants and synthetic biology and selected species to quickly but intelligently reprogram a piece of land for instance. That would be a nondisposable act, despite being a transient one. Terraforming isn't just for other planets.

The difference is not transience, but whether or not you are making history. An activity that goes on for millennia but has so little computational significance that it creates no history is disposable. An activity that takes place over a weekend but irreversibly alters the course of a piece of territory is not.

If you view the planet as a computer, will architecture be something like the electricity powering it, or like the memory chips? And if it's memory chips, does it matter that an idea is occasionally being copied from one substrate to another? If CGI environments can be reused across movies, perhaps the idea of a building, as a living memory, can be recompiled across brick-and-mortar embodiments.

So I think the answer is some mix of both. Neither is better or worse.

TCT: Your essay series, "Breaking Smart," theorized the tacit knowledge of Silicon Valley through an exegesis of Marc Andreessen's aphorism "software is eating the world." The central dynamic was the evolution from an era of heavy, slow, expensive, collective, and design-centric "software architecture" to light, fast, cheap, individual, and design-averse "hacking." Hacking embodies the rhythm of the twenty-first century, the just-in-time, always-on, perpetual-beta pulse of feverish innovation without a predetermined image or agenda. It is the innovation model of our time because it admits no plan. It is irreducibly agile, capable of responding to the speed of innovation in a networked world. Which is to say, as your series made plain, hacking drives contemporary history precisely because it is anti-architectural. To any architect, your conclusion was clear: architecture was unsuited to the contemporary clock of history making. Is the permaculture model a means of updating architecture? Is this approach a means for architects to enter the twenty-first century alongside hackers?

VGR: Well, interesting things have happened since I wrote that series, and I'm working on some of the questions now. We now live in procedurally generated and architected information landscapes that we are beginning to understand are going to require a good deal more design than we thought. Algorithms today shape newsfeeds and product recommendations. Walls of information basically. And to use an architectural metaphor,

the walls crumble easily, and the roof leaks. So, there's the problem of evolving the agile technologies to get better at constructing these information landscapes.

Then there's the problem of adapting physical architectures to the implications of these algorithmic landscapes. Bridging the digital divide, so to speak. For instance, in just the last year or two, the infrastructure for rideshare pickups at Seattle's airport has gone from ungoverned, to regulated, to architecturally accommodated. Instead of just getting an airport license and picking people up at the arrivals curb, rideshare drivers now converge on a central pickup location that takes up two lanes of parking in the basement of the short-term parking garage. It's a mess, but it's getting cleaned up. Like an algorithmically induced traffic jam.

That's an architecture problem. Understanding how information flows shape material flows and then designing the slow-changing parts of the built environment to handle the fast-changing parts of the flows. Spikes, surges, et cetera. The parking lot has to be a programmable entity now. You can design the whole solution stack, ranging from modeling demand to using predictive analytics with data from the rideshare apps, perhaps, and managing flow. This is not new. This is what architecture looks like in the industrial world: the design of things like factories, semiconductor fabs, blast furnaces, et cetera.

Archetypal "buildings" in our imagination are human-centric dwellings and workplaces. We have to recenter our intuitions around things like factories, because that kind of advanced material and information flow logic is starting to now reshape the lived environment.

Keller Easterling gets at this a little bit in *Extrastatecraft*, but that kind of thinking has to go a lot deeper. You have to figure out what it means to build smart, hackable, evolvable environments that can actually handle the material embodiments of the implications of increasingly unpredictable information flows. That's very abstract, but the idea is, agile simply means bits go a bit crazy because they are now responding more to uncertainty, and atoms are being turned crazy in their wake.

So, there's plenty for architects to do. The question is, do you want to do it? Architecture has always been the most ideological of the broader world of engineering arts, and to me, ideology translates to aesthetics in architecture. I think a lot of the "nothing for architects to do" moaning is actually about aesthetics. If you're unwilling to give up an aesthetic around what you view as your work, you have no work. If you're willing to develop a new aesthetic that reflects new technological possibilities, you have far too much to do.

TCT: What role does the historical architecture metaphor have left to play?

VGR: I wouldn't call the historical aspect of architecture a metaphor. It is quite literal. That role of memory preservation in the past was almost ceremonially assigned to architecture by default, since other forms of cultural memory were so much weaker. Even the written word, when most important to preserve, was trusted to architecture in the form of edicts carved into stone and incorporated into buildings.

Now, it is no longer the default choice. It's just one of many in the mix, and not the most important one, for the simple reason that there is far too much history to be embodied by architecture. We create more history in a week today than we did in a year a few centuries ago. And I don't just mean data. I mean things worth remembering. Information that documents and preserves change and evolution.

TCT: One of the events chronicled in the exhibition is the 1997 discovery of astral alignments at Nabta Playa, a supremely ancient megalithic site discovered in the Sahara in the 1970s. The most compelling reading of it argues that ancient nomadic cattle-herding Africans developed a system of computing life-or-death weather cycles in the then-seasonally monsoon-flooded plains west of the Nile by using architecture to read the stars with a stone technology that combined ritual and computational significance. As a precursor to the pyramids, this stone circle is one of many Neolithic prototemples around the world that I would suggest are the collective archetype of the history-making, memory-preserving, nondisposable permaculture architecture you describe. Baked into this archetype is the construction, calibration, and recalibration of meaning through an evolving integrated system of myth, ritual, symbolism, and architectural form that tracks and attempts to direct the unfolding of history in the cosmos, celestially and terrestrially. Do these various competitors you mention similarly operate within a comprehensive cosmological system of preserving cultural meaning, or are other variables in play? Is architecture less important because better alternatives have been developed to address the same need, or has the nature of cultural memory itself changed?

VGR: Well, trivially, we did invent better ways of answering those kinds of questions, insofar as they present a practical and literal aspect. Stonehenge is nice, but I think Hubble is nicer. The interesting challenge is that as technologies improve, they also have a tendency to retreat into the invisible background where they are less available to be folded into lived and performed historical memory, so to speak. Look at the brave and largely failed attempts to catalyze a more cosmic consciousness based on space technologies. You have the pale blue dot picture. You have the first full-disc portrait of the Earth from Apollo, which for a while was an iconic countercultural image. You've now got the DSCOVR satellite at the Sun-Earth L1 point taking portrait pictures daily.

But unlike Stonehenge or the pyramids, or Nabta Playa, you have to make an effort to bring these technologies into lived historical consciousness. This is true of basically everything technological. I wrote an essay a few years ago called "American Cloud," which argued that the infrastructure of civilization is getting automated and retreating into the background, leaving behind a sort of fake user-experience landscape in living spaces that is much more of an arbitrary fiction. An urban farmer's market can be designed in ways that aren't strongly tied to the actual realities of modern agriculture. That's both a feature and a bug. On the one hand, your imagination can run riot and synthesize all sorts of new realities. On the other hand, the loss of that direct groundedness does make us stupid in some dangerous ways. For example, there was an anecdote I read long ago about a bunch of school children making the same mysterious arithmetic error in a problem about milk production. It turned out they were city kids assuming a five-day work week for cows.

I tend to have something of a barbell attitude toward this stuff. It is important not to confuse astronomy and astrology, so to speak. The cultural forms that evolve around functional forms are shaped by those functional forms, but largely do not turn around and reshape those functional forms as much. Science and technology display this asymmetry: science inspires science fiction a lot more than science fiction inspires science. The UX of civilization as created by architects can reflect the state of technology and science a lot more than it can influence it. At least directly.

A great modern example of this is Charlotte's airport, where I just read they've installed a massive architectural-scale artwork that uses flight and airport operations data to create data sculptures displayed on huge screens throughout the airport. That's great stuff, and it allows us to inhabit the realities of air travel much more richly and viscerally. But the feedback loop going the other way is weak. Art and architecture cannot as easily reshape the realities of air travel. That's driven by much harsher realities like, say, the behavior of carbon fiber composites under high stress and other leading-edge aerospace engineering problems.

TCT: Earlier you mentioned "living consciousness," a central tenet of esoteric philosophies, of which pretty much all strands attempt to draw a line back to the ancient world, particularly Egypt. The idea is that the cosmos itself is conscious, that we and other creatures, elements, geological features, spirits, and the like are part of this consciousness, and that together we are evolving over time. We exchanged tweets a few months ago in which I declared my post-Trump interest in mysticism, while you declared that mysticism forms a background from which your thinking around technology and society emerges. What do you mean by "living consciousness"? How is it different from

what you've called the "infinite game of life"? Does it have any resonance with your idea that hacking, rather than architecture, is the problem-solving approach best suited for innovation in a networked world?

VGR: Let me get at this in a bit of a roundabout way.

This is a fun theme in both speculative futurism and fiction, not just esoteric philosophies. Isaac Asimov's *Foundation* series turns a question of institutional futures into a question of living consciousness. Bruce Sterling's *Schismatrix Plus* has a spectrum of future forms of society ranging from living consciousness to various forms of genetic and digital transhumanism. The shaper/mechanist dichotomy in that book is one of the more interesting framings of the idea I've seen. He even has an ontology of "Prigogine levels" of civilization as it evolves from basic sorts of transhumanism to a living planetary or galactic-scale consciousness.

These speculations, you could say, are concrete ways to understand possible human conditions that then entail particular forms of material civilization to support them. Is it a future of robots and humans? Genetically modified superhumans and regular humans? Projected consciousness inhabiting robotic bodies? Or even Sterling's "wireheads" that just exist as disembodied beings in the cloud? Networked brains? Each thought experiment suggests an entire civilization, and an architecture.

I think architecture is where the previous version of this question was asked. You have the built environment as the substrate, then human institutions within them in the form of patterns of life shaped by those substrates, and then the sort of integration of the two into living consciousness, an idea that can be figurative, as with the concept of egregores, or

more literal to varying degrees, like networked neural prosthetics that connect people to each other as well as to the built environment so the thing becomes an organic whole.

When you contrast these possibilities with thinking on the more esoteric end of speculation, like Jungian ideas of a collective unconscious or, say, Advaita and the notion of a universal consciousness, you see something interesting. We're technologically making many esoteric speculations real. You no longer need to debate whether telepathy is real because you can actually build a version of it.

So, to answer your question, a living consciousness is how we imagine the human condition gets embodied in its environment. Is it mechanically distinct from it? Is the boundary clear? How does human-to-human, human-to-machine, and human-to-superhuman connectivity get embodied? As you go from lower to higher technological levels, all clean boundaries begin to blur.

TCT: Finally, you offered a delightfully magical definition of architecture in a post you wrote after speaking at the Guggenheim Museum in New York in 2015, on the eve of what you later called "The Great Weirding":

> *A mid-life crisis is not a way to recenter yourself in the universe through an act of epistemology. It is a way to recenter the universe around yourself through an act of architecture. An act of architecture capable of making the universe all about you.*

Does this still capture your understanding post-Weirding? Would you like to edit, augment, or expand it?

VGR: Yes, I'd say so. The idea of constructing your own reality is now a central one for me, and this captures the gist of it. I've since developed an elaboration of it in terms of how we think about time. Inhabiting your own reality is roughly the same thing as inhabiting your own subjective timeline. A sort of embodied stream of consciousness that can project and distort reality through technological means.

I like to think of it in terms of Philip K. Dick's definition of reality: that which does not go away when you stop believing in it. But technology increasingly gives *us* the ability to retreat from reality in that sense, to make our own. Some aspects of Dickian reality will pursue you, at varying rates, and you may or may not be able to outrun them. Such retreat, generally labeled escapism and viewed in a pejorative light, is now a more serious aspect of the human condition.

Reality construction, escapism, and solipsism all feed into the process of making architecture the ultimate act of lived anthropocentrism. It is dangerous as an epistemic or ontological stance, but wonderfully fertile as a creative stance.