Karl Chu

Professor, Pratt Institute

United States

The Global Brain
Beyond The Correlationist Paradigm In Architecture
"The necessity of contingency: it could not be otherwise than everything could be otherwise."

Quentin Meillassoux

It has been three-quarters of a century since Alan Turing published in 1936 "On Computable Numbers with an Application to the Entscheidungsproblem," where he introduced the modern concept of computation: the Universal Turing Machine that serves as a classical model, as opposed to the quantum model, of computation. Since then, it has transformed the way we think and interact with the world to such an extent that there is now a new conception of the world emerging: the global brain. It’s an idea that is seldom explicitly stated but is nonetheless implicit in the trajectory toward the formation of a planetary computing system. However, if we look at the early stages of the application of computing systems, we find that the middle to late modern era was ushered in by the Department of Defense, which finds its expression in the development and explosion of the first atomic bomb in 1945 and subsequently, the Internet in 1969. Incidentally, it should be noted that J. C. R. Licklider, head of the Advanced Research Project Agency of the Defense, came up with the idea for an Intergalactic Computer Network in 1962. This is to illustrate the range, deployment and implications contained in the phenomenon of universal computation beyond the scope understood and utilized by most architects working with computers today. Let it suffice to say that computation is not merely to be thought of as an instrument for communication and transaction of information but, most significantly, it is crucial for us to come to terms with its latent ambition: the embodiment of artificial life and intelligence in new forms of artificial species, be they virtual robotic agents and agencies or the global brain, the logical consequence of a planetary computing system.

Given the nature of universal computation, it is imperative for us to re-think, if not to remind us of what has always been the case concerning the nature and scope of architecture: the (generative) construction of possible worlds. What lies at the core of architecture is the dialectics of necessity and contingency with regard to the construction of possible worlds. Necessity is the mother of invention (as the saying goes) is true only to the extent that it is tied to issues pertaining to life and death: one dealing with the destruction of life and cities –as witnessed by the Manhattan Project- and the other enabling the communication and exchange of information for the conduct of life, as it is the case with the Internet. Beyond that, it is the necessity of contingency that establishes what could be characterized as the primordiality of non-contradiction or unreason for the construction of possible worlds: there is no necessary being, idea, or metacode that constitutes an overarching determination for each world to be absolutely the case that it is; it could be otherwise.

Even the laws of nature are contingent: a different set of initial conditions would have generated a different evolution of the Universe, perhaps one without recursion, which is part of the underlying logic of computation, is built into it. Due to extremely minute fluctuations in the dynamic evolution of the physical Universe over long stretches of cosmic time, it has been postulated with a discernible degree of probability that the laws will remain neither constant nor can they be considered eternal. Nature is stranger than any concept of paradise that we can think of. Equivalently, it is a radicalization of the art of counterfactuals that lies at the heart of any conception of freedom: infinite potency as well as the profound lack of it that engenders universes of architecture in modal space.

For now, the two events mentioned above, separated by almost a quarter of a century, are pivotal moments in the history of instrumental reason that have changed the way we think, interact and perceive the world. Since then, the world has become increasingly saturated with ubiquitous and pervasive computing systems at all levels of society. From scientific calculation and analysis to adaptive modeling and simulation, artificial life and neural networks systems to DNA computing, cloud computation...
and high-frequency trading to architecture, design and robotics fabrication, etc., the world is being transformed into a massively distributive interconnected system where artificial and natural systems are, at the moment, in the early stages of being integrated at some level of functionality. Given the similarity between the evolution and growth of artificial network systems to that of the human nervous system, some are now referring to this evolving techno-superorganism as the emergence of a planetary computing system: the Global Brain.

The underlying thesis is not new: everything is or will be interconnected at all scales and in some capacity, like things in the natural world: from nano-computational monads roaming inside of blood-streams (to augment the information processing capacity of a physical body) to the planetary ecosystem including plants, animals, organisms and ambient systems such as the climate and the electromagnetic field. The Global Brain is the superorganism par excellence for the transformation and exchange of matter and energy by means of information.

Some of the distinguishing features of the global brain are surmised to be: (1) organicism—the planet as a living organism, (2) encyclopedism—a universal knowledge network, and (3) emergentism—a phase transition that indicates the emergence of a higher order system in evolution. While many have looked upon this emerging superorganism primarily through the lens of biology and cybernetic information systems, little attempt has been made to understand them in terms of their cultural and philosophical implications and their significance. History has shown that there is no technical and formal development in science and technology that is not augmented and accompanied by philosophical visions about the present in relation to the future. I would therefore like to further extend these developments as a massive architectural proposition: the generative construction of the architecture of possible worlds.

Correspondingly, many issues raised by the concept of the global brain can be addressed by subsuming it under a computational monadology of architecture: (1) Autocatalytic dynamics and interactive morphogenesis: genes and memes involved in the self-replication, self-organization and mutation of forms situated within nested hierarchies of emergent ensembles, (2) Dialectics of interiority and exteriority: ontogenetic and phylogenetic unfolding of creative intelligence embedded within the interiority of architecture, (3) Virtualization of the world: phenomenology of compression and decompression of space, time, information and agency, (4) Modal space: the construction of possible worlds including counterfactuals, transworld identity and their correlations, and (5) Totality and infinity: the generic infinite that cannot be circumscribed by the resources of any language and medium of computation.
Thought of the global brain therefore gives rise to the urgency for a radical re-thinking of architecture. It entails the following corollaries from the above five propositions: (1) The concept of architecture will have to expanded beyond the art of making buildings, which is to be subsumed within the evolving matrix of the genetic construction of possible worlds. (2) Emancipation of architecture from anthropogenic space as schematized in the logic of correlationism by Quentin Meillassoux. Correlationism essentially states that the existence of the world is correlated to the presence of a subject as thinker/perceiver and not without. Correlationism, therefore, is antithetical to all forms of realism, and, consequently, it leads to the overt manifestation of the tyranny of anthropology and the imposition of destiny, manifest or otherwise. (3) Gilles Deleuze inversion of the Kantian transcendental subject into a transcendental empiricist does not necessarily abolish certain mutant strands of the eternal return contained in the necessitarian pretensions of classical metaphysics, which is in complicit with the return of the religious that induces us to complacently luxuriate in a fictitious supplement of spirituality, according to Alain Badiou I would further add that it is the equivalent of taking refuge in some version of materialist dialectics that exclude information.

It would be a misnomer to call the global brain a form of totality. It is an open system with no clearly defined boundary condition: neither at the level of the ever-changing configuration of the network nor in its complex and nested relation to the physical. It is the metaphor of the global brain that alludes to being thought of as a totality. Unlike the planet Earth, which is also a form of totality with its spherical shape encompassed by the biosphere, the global brain has no such formal delimitation. The architecture of the global brain is a self-organizing and self-modifying network system that is not anchored to any condition of stability or reference.

The global brain is a platform or arena where all sorts of mutant interactions and genetic transmutations are played out. It should be noted that the ambitions of genetic architecture are connected with the genesis of possible worlds. As such, it needs to be augmented by fidelity to generic extensions of the Oracle machine, which signifies the potential overcoming of the noncomputable. Correspondingly, near and beyond the limits of the computable is the encounter with the generic truth of a situation that is infinite and therefore ineffable, one that cannot be circumscribed by thought or brought to completion by the elements and resources of a given language and medium of computation: radical openness to the possible inclusion of the nameless, the indiscernible and the unknowable.

As a way to encapsulate all the above mentioned issues, this essay explores and situates at every stage the dialectics between the necessity of contingency, which points to the omnipotence of chaos, and the contingency of necessity, the possible emergence of order out of chaos, as the basis for the construction of genetic architecture: the for-itself finds its being in the in-itself at the moment where the architecture of life and the life of architecture converges toward the emergence of a singularity in the brave new worlds of architecture to come.

Figure 1. Planet Automata. ZyZx 105, Karl Chu
Figure 2. Planet Automata. ZyZx 169, Karl Chu
Figure 3. Planet Automata. ZyZx 187, Karl Chu