

# PNYX

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WHERE last week's issue looked at the beginning of the project of modernism, this week AA third-year Francesco Catemario di Quadri examines the implications of its bathetic aftermath. What follows is a speculation on the redundancy of the architect and the machine intelligence that exceeds her.

## ABOLISH THE ARCHITECT: RISE THE MACHINE

Francesco Catemario di Quadri

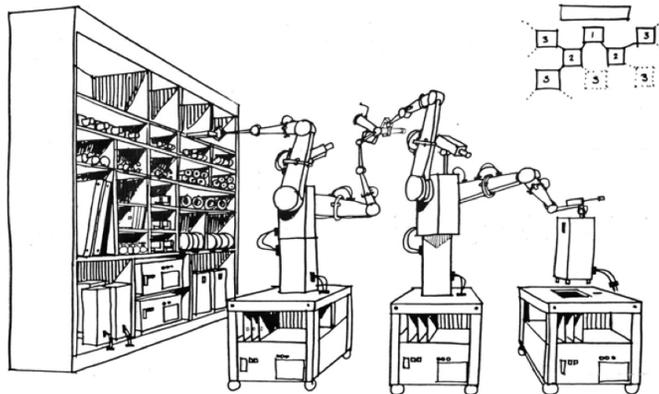
### TOWARDS A FREE SOCIETY

First, the architect was a professional extension of himself, through his spatial understanding and socio-contextual sensitivity. Now, the architect is characterized as what Lewis Mumford once called a *paleotechnic* organism in a society that Le Corbusier diagnosed as *deeply modified by the machine-age*. Superseded by a wave of *neotechnic* machines that are constantly replaced by better ones, the architect is to remain a fossil in what will be the beginning of the end of man's architectural transcendence. The digital implementation of architectural tools, on which the architect now depends, has led to his self-demise. They have become a set of professional tools that lie beyond the body and knowledge of their users, becoming virtual prostheses. However, this separation of the architectural profession from the architect has allowed it to become an annexable limb. The commercialization of these tools is subsequently that of the profession, whereby an architect is no-one and everyone is an architect. From this follows that the machine is now an architect; an *autopoietic* architect. So let us build, what Patrik Schumacher describes as, *machines that can learn, [...] grope and can fumble*, relieving society of the mundane task of building.

## MECHANICAL PARTNERSHIP: EVERYONE AS AN ARCHITECT

In the words of Norbert Wiener, we should not worship the machine like a new grazing calf, but adopt it as a new form of domestic digital design, as all it requires is an individual who can operate it as a prosthesis.

Unlike the architect, the *criteria machine* would design through the rhythm of dialogue, an evolutionary solution-generator



R. Freitas Jr. & W. P. Gilbreath. "A Self-Replicating, Growing, Lunar Factory," AIAA, 1981

enhanced through interaction with the user. It is arguable that entrusting decision making to something incapable of thinking ideationally – unable to recognize human values – is far from utilitarian, and that therefore, in the words of Nicholas Negroponte, *computer-aided design should not occur without machine-intelligence*. A design machine must be able to identify and therefore fathom the architectural context in anticipation of performing an operation. Only a machine that can understand changes that occur in the context as it operates, and updates its operation accordingly, (a metamorphic process) should be considered intelligent.

Whilst in conversation with the operator, Leo A. Daly Company Architects' model ARCHIT utilizes trial-and-error-based loop

programming, an intelligent system that improves over time by learning. The computer provides predefined responses to habitual events until the projection fails, demonstrating that *finally, unlearning is as important as learning*. The computer's inability to forget becomes obsolete. The significance of information gradually declines over time.

The potential encoded within such computers is restricted by the limited degree to which they have been commercialized. But, by reconfiguring the architectural profession through them we will see an unfettered rise in self-supplying consumers: one architect per capita. With these machines, people will engage in domestic artisanal production, enabling them to print what, when and where they need it. The feasibility of this model comes from its potential to supply 1000 unique or identical products at the same expense. The extortionate price traditionally attached to product customization essentially vanishes.

Such machines might be better thought of as *architecture machines*. The partnership they share with an "architect" (operator) represents a discourse between two intelligent contributors; one that holds the potential for a revolutionary evolutionary system. Now let us treat the partnership as a transition. What of a society that would concern itself with leisure rather than building? This society would require autonomous machines.

## THE MACHINE AS AN ARCHITECT

If a machine is to create a *design solution* without predetermined instructions supplied by an operator, then it must be able to assess a *design problem*. This requires three

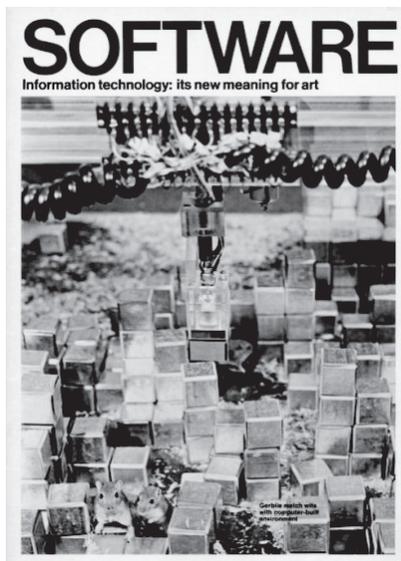
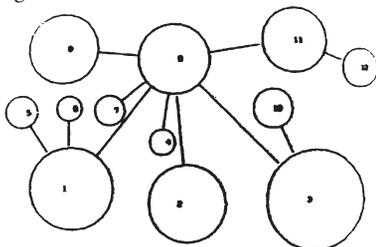
crucial properties: an observable event, a quantifiable manifestation, and a physical representation. This is computer intelligence, an independent, programmed thought process.

A metamorphic machine's capability to evaluate and develop as it observes, allows it learn from what it has already learned. This represents *a method of finding a method of solution*, whose human authorship becomes obscured by the brutal economy of computational decision-making, conclusively determining the machine as the creator. Thus we can imagine a machine able to learn within the context of a reconfigured definition of architecture, and perhaps even *learn about learning about architecture*.

Leon Grossier and Nicholas Negroponte's experiment SEEK - or Blocksworld as it was often called - sought to do just that. Built by Negroponte's Architecture Machine Group at MIT, it was a machine capable to learning from what it had learned via architecting an ever-changing environment inhabited by gerbils.

Imagine being a gerbil in the Blocksworld. Your only purposes are to eat, find shelter and reproduce. Imagine carrying out these tasks in an ever-changing environment, which reconfigures itself to your convenience, facilitating and enhancing the execution of these tasks. As the space mechanically reconfigures itself, you will have only to concern yourself with two of three of life's given purposes, leaving you to eat more, and reproduce more.

By devising an initial spatial arrangement, followed by the assessment of that arrangement's contribution to the altered patterns of its inhabitants, the computer can produce a new solution. The computer therefore becomes the architect through the performance of a socio-architectural analysis, the aptitude for which has traditionally been attributed to the professional architect. In a society where architecture is comprised of blocks, the architect is no longer required. This *technomorphic architecture* provides an edifice for its users who no longer associate the architect with a corporeal aura, and 'the architect' becomes a linguistic obsolescence.



Professor:  
What time is it?  
Computer:  
It is 8:30 p.m., Thursday, December 5, 1985.  
Professor:  
I think I would like to start with some music today, let's have some chamber music.  
Computer:  
You listen to Telemann most.  
Professor:  
No, something earlier.  
Computer:  
What about...  
Six months later, in the August issue of *Datamation*, B.W. Boehm parodied the sketch implanting aspects of present-day dilemmas:  
Professor:  
What time is it?  
Computer:  
I did not catch the last word. Or was it two words?  
Professor:  
What is the time?  
Computer:  
The dime is a copper coin worth one-tenth of a dollar. The word derives from the Latin decem, meaning...  
Professor:  
No. No. What is the time? The time?  
Computer:  
It is 8:30 p.m., Thursday, December 5, 1985. We have been having some trouble with your linguals recently. Sometimes I can't tell your d's from your t's. Let's practice them. Watch the display screen for the intonation pattern, and repeat after me: Teddy's daddy toted two dead toads to Detroit.  
Professor:  
Teddy's daddy toted...

This model of the architectural machine, however, fails to address a critical flaw, viz. its eventual decay in the course of time.

### PERPETUITY AS AN ARCHITECT

The cycle of life and death is a natural law. But historically, the architect as a professional, augmented by the prosthesis of knowledge, has survived. The conferring of knowledge upon each subsequent generation has lent the professional figure a kind of immortality. The only function that will allow the architectural machine to exceed him is *autopoiesis*.

Patrik Schumacher explains this as:

*[...] the theory of social systems understood as systems of communications that reproduce all their necessary, specific communication structures within their own self-referentially closed process.*

The notion of autopoiesis suggests an auto-regenerative architecture. Such a self-contriving system can and should merge with the theory of social systems. For architecture's *raison d'être* is its postulatory understanding of social activity. Human autonomy from architecture is thus human autonomy from the burden of topical socio-contextualization, giving birth to a society that can devote itself to activities other than building. Intelligent automation is therefore intrinsic to societal evolution. Vacant of architectural concern, mankind will be free to pursue alternative interests, increasing, in the words of Wiener, *his leisure and enriching his spiritual life*.

We shall not dwell on the obvious: an autopoietic architect is an immortal architect. Thus, let the machine concern itself with building, and let man concern himself with society. As Superstudio declared:

"We can live without architecture."

*Left: GRAMPA program interpolation of the sketch of a residential plan, 1971.*

*Top right: Cover of the Software exhibition, where SEEK was exhibited. The Architecture Machine Group, MIT, 1970.*

*Bottom right: A conversation between the user and a machine capable of listening and responding. An example of a machine that is learning from learning, in this case the language of the user in order to enhance communication efficiency with the "architect". Mezie, Leslie, Datamation, January 1967*