

Notes on the Political Image: Pervasive Computing, Modeling Assemblage, and Ecological Governance

Abstract:

What are the larger opportunities for pervasive computing technologies to monitor and model the intricate assemblages of the natural and artificial environments? Perhaps more importantly, how might such media contribute to or even constitute in a new kind of *reflexive governance* in the image of the information they produce?

We consider what is at stake for such a constitution by locating it in theoretical insights from other contexts. In outlining current and future research directions, we underscore the necessity of environmentally produced information to concretize itself not merely as data for some later, deferred political action, but as a direct political image: an *instrumental diagram* in its own right.

Agencies: Borders, Sensors, Interfaces Far from borderless, our world is filled with an apparent infinity of political borders, biological borders, logistical borders, informational borders. “Things” (flora, fauna, and machines, data) assemble, expunge and express themselves within this segmented landscape.

We see such borders also as *interfaces*, membranes which govern the conditions of exchange between any paired complex bodies (from ambient air and soil to a bank customer and her money.)

An environmental sensor, be it a flower petal or inscribed silicon wafers microcasting in near-field communication, is, in Bruno Latour’s parlance, a kind of *actant*. (Latour, 2005) It speaks on behalf of some condition in this little network and communicates to other parts of the system. The interface, in this case that sensor, thus takes the position of a limited agent in the whole system, and in it, the smallest transactional unit of data, becomes itself the emergent actor in this landscape of borders.

The Pervasive Scenario: To Govern What? The driving scenario understood by us, is one in which there would be a local administration of each interface’s expression -- what toxins flowers absorb, what plastics are allowed through customs, what concrete infrastructure cracks under slow pressure—based on what is heard and is relayed through a pervasive network of networks of computational monitoring media.

But once data is gathered what does this image look like in detail, and what is done with it once we have it?

Individual events in this listening landscape are absorbed as signifiers, are correlated according to as yet unimagined protocols, and are registered not only as information about which a governance might act, but for us as the actual medium of some non-governmental political apparatuses would register themselves back onto the world.

That is, first the information is a map or diagram and then, more interestingly, that same information becomes an interface.

In this, governance is not delivered by the management of “human rights,” but instead acts according to new constitutional forms, yet to be formally ratified. Its work is not simply policing an environmental homeostasis, but of direct management by participation of ecosystemic interfaces *as the constitution of a new polis and politics*. (Mouffe, 2005)

It is that imminent political diagram, not yet present, that redefines interfaces less as pure information than as positions in an expanded parliamentary territory; neither a ‘standing reserve’ of objective datapoints nor a undifferentiated naturalized unity. (Heidegger, 1993)

Policy and Relationality At NYU’s Environmental Health Clinic, these operations are designed as a matter of institutional policy (or policy is made as a matter of design.) They are a model for how ecological interfaces, both human and non-human, both organic and inorganic, can be understood as site of *health*. And health is then less the individual body and the medicines that might be inserted into it to contain undesirable states, than it is the external, plural, at-hand living and non-living worlds of the urban landscape. Here a fertile middle-ground is taken as the location of prescription and operation. The individual lung and the gathering storm system are engaged at once by design, as both public health records in their ways.

Both provide an open form of evidence of what the administrative unit and ecological microcosm that is NYU is doing and has done through its multi-scalar participations in the urban ecology of the city. As with any Clinic, at EHC prescriptions are given. But here prescriptions are offered both to individuals and to architectural systems on how to better monitor and adjust or redesign the causal interrelationships in which they work.

Some Recent Projects Toward This: A Portfolio of Prescriptions Some projects at NYU’s EHC work to monitor and measure that evidence, and others to redesign through it.

For example, One Tree Project, in which genetically identical trees were planted across the Bay Area acts as a formidable monitoring interface for the effects

of ambient environmental variation on the complex mechanisms of organic growth. In another,, 1400 face masks were distributed to the mingling hordes of protesters and pedestrians during the Republican convention in New York, which together worked as a networked surface on which individual consumption of air pollutants was traced and tracked. In these, distributed interfaces express and even compute, socially legible evidence of ecological interactions. But instead of such symptoms rendered through a mediating layer of silicon computation, these simple, extremely analog devices draw their evidence more directly.

This allows a more direct experiential response to the information they express, but like any such image they require another step before becoming instruments of change and governance.

Other NYU EHC projects directly redesign the *assemblages* at work (DeLanda, 2006). No Park, for example, uses a legal gap in traffic storage interfaces (i.e. no parking zones in front of hydrants) to install intricately designed gardens which absorb automobile related pollutants right where they are generated. Here the socio-ecological network of the city is neither smothered nor rarified, but amplified and engaged by configuring it at the level (and height) of collective assembly.

Future projects seek to engage at the scale of the NYU micro-city and its architectures. One locates solar panels not on rooftops but as window shades, circumventing the difficult regulations of solar collection technologies in Manhattan as well as locating the production side of shared energy infrastructure at the direct personal level of individual dorm and office dwellers. He and she can see and relate to their energy consumption footprint at the literal scale of his or her own footprint. Another improves on the vogue for rooftop gardens as decorative micro-parks for people and turns them into gray water treatment machines that support the interlocking purposes of ground-level and migratory species across the city.

Data Smog and the Missing Expert In these projects a problem of translation and activation is introduced, one that is not solved by the amassing of more computational power and the scattering of sensors into the world. That is, natural systems work very well already as monitoring devices, but we have yet to formulate

complete constitutional images of their participation. We have yet to find the best ways of making an *image-instrument* of their political profiles, diagrams of their evidence that constitute an effective agency.

Scaled somewhere between the medical care of the individual body and the continental sweep weather modeling, the an ecological *polis* is largely unmanaged and unarticulated.

To introduce an layer of engineered listening and speaking media into and onto the ambient environment (in parking lots, wetlands, cloud clusters, lung cells, etc.) will open a flood of information about how worldly systems perform and relate. By flipping the on-switch, as it were, and being at once able to monitor and model the interrelationships of all assemblages at once, would be akin to the invention of the microscope, opening up the complexity and agency of worlds we could not imagine.

But would it also be a din of voices that we simply do not have the means to properly listen to, to govern through: a churning cacophony of signals?

The design impulse will be to model these signals into dataclouds, undulating traffic clusters that allow datasets to be sliced and figured by different patterns and variables. We believe that such data clouds have purpose and potential but cannot by themselves realize either. Dataclouds have a tendency to inappropriately reassure their audiences. They imply, in the grace and intricacy of their renderings, a presumed expert system (and expert) on whose behalf they are fictitiously designed who *must* be using these information as an instrument of government, somewhere. If not now, soon. Dataclouds signify control but too often only defer agency to that missing expert. This is part of the work that they do as blog culture memes. They assure; they present the *affect* of a political agency that is still to find its bearings.

The data cloud looks like expert instrumentation, but does the closed frame of its bounded diagnostic, in fact make it easier for those viewing the data cloud to retract their own involvement back into logic of simulation and to remain spectators?

What is the political space of air quality? What would it mean for such images to work more effectively as interfaces? How can the images of evidence, produced by pervasive sensing media, work not just to display information about socio-ecosystems but to turn their audiences into users who can, in the direct course of their habitation of the world, compute by their interactions a preferred assemblage of what the image represents? How can the data that becomes diagrams, become again instruments of a new political space?

The answer to these, we believe, lies in the specification of both an ecologically appropriate political scale and a constitutional image of that *polis*, which

in turn may *rely on the encounters between pervasive computing and ecological governance*.

Notes:

Manuel De Landa, *A New Philosophy of Society: Assemblage Theory and Social Complexity*. Continuum. London. 2006.

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Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford University Press. 2005

Chantal Mouffe, *On the Political*. Routledge, New York. 2005.

Author Biographies

Benjamin H. Bratton (SCI_Arc, UCLA, Yahoo!) invents systems concepts and translates and transposes them into actual systems. This labor requires him to wear many hats for different occasions, including sociologist, design strategist, professor, software executive, and historian of exceptional violence. He teaches architects about double-bind ironies at SCI_Arc, media artists about topologies of logistics at UCLA, and enterprise product strategists about the social specification of emergent data channels at Yahoo!.

Natalie Jeremijenko (NYU Environmental Health Clinic) is a polymath design technologist and political affectician, working within the wormholes connecting experimental art and global science policy. She has taught at the world's august institutions, been shown in the toniest arts festivals, received the most competitive awards, and annoyed the most miscast authoritarians.