

Atlas of Fantastic Infrastructures

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An Intimate Look at
Media Architecture

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Foreword: Mastering the Generic

As a large research group in the discipline of Architecture and Information we are on top of it all: data banks, networks, Big Data, Ubiquitous Computing, parameters, grammars – one of our artefacts passed the Turing Test 10 years ago: an automatically designed building won an architecture prize. Since then we ask: what is architecture? What is it, if the old concepts of architecture now lie with machines, which, in their application of these concepts, are quick, adaptable, competent, aesthetic, optimised and sustainable? We are at once bored and worried, and we watch as machinic creativity extends its entropic reach. Globalisation. Rem Koolhaas, in his sarcastic way, calls it ‘generic’ and ‘junk space’. Like he, we see ourselves faced with the paradox: ‘You can’t improve by doing better’.

So what is information? For Norbert Wiener: neither matter nor energy. For quantum physics: neither

particle nor wave. But what do we see today? Everybody has ever more projects (particles) and is ever more engaged (waves). Both are, in equal measure, machinistic articulations of information. Whether we critically want to do something for the climate, against hunger or for the rainforest, or enforce politically correct rules for language; whether we pragmatically develop new medicines, install security and surveillance systems, set up logistics for world trade, or fundamentally attempt the fusion of atoms; inspired, fascinated or terrified by the exponentially growing speed and the power of the machines, we harmonise and homogenise everything we can lay our hands on in an ever escalating pro-and-con. The Great Project Entropy. The Generic. Out of sheer impatience, we now only have room for good and evil, as measured, for example, by CO² emissions. Energy efficiency, sustainability, climate change, world famine... – these are the battle cries of a machinic generic world. Tyranny (particles) and terror (waves) balance each other in the entropic heat death of the universe.

Quantum, negentropy, information: all these don't. They are not part of this game. Because information is, just like quanta, neither matter nor energy. They are the vertical stabilities in a horizontal machinistic stream. A new, more abstract mathematics, a new, more abstract language, a new, more abstract technology now come before any specificity of machines. Human beings who understand this language, who master this technology, are able to talk to each other – unimpressed by the constant stream of necessities – about possibilities. Talk politically, on solid, economic ground, have a say and enter compacts about the future of our world.

We are born into a new world today. A world in which no longer people, but things embody what Vitruvian Man has learnt since the Renaissance. But in this exactly we are like him: because he, too, was born into a new world. Which is why he can set an example for us: he shaped and instrumentalised the movement of his world with the ratio in time, by putting spatial elements into mutual perspectives – allowing them to talk to each other, so to speak. Later, as the outraged icon of Revolution, Marianne formalised and orchestrated the movement of her world in the rationality of time. And so, in the language of space, the search was on for a common, fictitious, temporal origin of any element whatsoever (enlightenment).

All of this today is embodied by *things*. They are temporal elements, and no longer the spatial elements of Vitruvian Man or of the revolutionary Marianne. Today, we are born into this new world of temporal elements. And just like Leonardo, and before him Vitruvius, we shape and instrumentalise our world. Just not with spatial elements and the ratio of a time, but now with temporal elements and the ratio of a ‘life’, as we might cautiously suggest. One which we, like Vitruvius and Leonardo, put into a mutual perspective and effectively let talk to each other (today we no longer call this ‘perspective’ but ‘communication’, and we mirror ourselves not on the horizon but in coincidence.)

So there’s a lot we can learn from the masters of all times. And the significant lesson of the old masters is that we have to master the technics of our world to become a whole person and express ourselves masterly. Hence the prevalence of programming in our research today: ‘Coding as literacy.’ Literacy is

what allows us to rise in the stream of the machines and talk to other people.

In this Atlas we can see how we can talk about digital infrastructures and media architecture without foreshortening them: no detailed and boring technical classifications or manuals (all of that can be found aplenty in the internet). No excited, solicitous, critical features and project descriptions (this too, you'll find at escalating levels everywhere). All of this is increasingly dull, because it repeats, over and over again.

Here, we get a quiet, intelligent, de-escalated, marveling, stimulated, stirred up, but not complaining, not engaged, not critical, not analytical, not classifying, but decidedly personal compilation. We are taken on an odyssey about media in architecture. It follows the traces, the bearings of abstract heroes – all of this in an attempt at giving a shape to the digital world, and in the knowledge that it may easily take another 100, perhaps 300 years before a project of this kind is concluded and we can begin to logically capture the new perspectivity of our world.

No, we don't find it, the new explicit technics or the new digital paradigm. Rather, we see a very long road, from the concrete, real lantern, which we've got used to, through the functional, fictitious lighting that we've developed and optimised, towards the shimmering glow of active, technical things today. Not projective shadows under the sun, or an enlightened illumination of those shadows, but the glimmer of things in the pale moonlight.

Ludger Hovestadt
February 2016

Preface

They say it would take 1100 years by plane to fly around VY Canis Majoris, one of the largest known stars in the universe, with a diameter of 1,976,640,000 kilometres. Luckily my planet is about 155,000 times smaller, and my species has successfully built a generic communication network on it that's now shared across the globe. Still, I am no longer sure that the size of the sphere really matters. While Earth's 20th century infrastructure was based on a "finite amount of ice in our ice caps,"¹ what we call the digital infrastructure seems to work outside any physical constraints. If that is the case, then what kinds of limits do I have? Perhaps this is the wrong question to ask. How about: what shall I do and where shall we fly off together with our digital infrastructure?

As a designer and theorist, my intention with this book is to avoid direct theorisation of the phenomena and, instead, to be experimental. My subjective analyses and speculations are dedicated to characterising the relationship between digital infrastructure and media architecture. For me, media architecture is digital infrastructure based architecture, which is something more than blinking LED displays, mood walls and responsive installations. The glamorous appearance of media facades instantly attracts people,

for sure. But they mediate not only colourful relations but also technologically encrypted ones. And my interest is far from approaching them technically: I would like to talk about abstract ‘prisms’ that could radially shed a light on the phenomena in a broader technological context. So what I try to do is understand the vividness and fantasticality of media architecture based on infrastructural cultivation and articulation. Accordingly, the terms ‘digital infrastructure’ and ‘media architecture’ will appear and disappear, contract and expand, evaporate and crystallise throughout this book.

As the result of an experiment, this work has taken the form of four distinct Atlases. I did not plan to have four of them from the beginning. The seed was a mini-atlas of digital infrastructures that I made towards the end of 2011. In 2012, I was mostly busy fighting the giant cockroaches of Singapore, but I still managed to sort through my greatest fantasies in the digital world, clustering and re-clustering hundreds of images of digital life and media architecture. From 2013 onwards, each Atlas was born, one after the other, in parallel with my doctoral research in Zürich. But this book is not a doctoral thesis; it shares its spirit, but it tells intimate stories that could not have been told in an academic format.

Each Atlas in turn has its own set of categories. These categories are sometimes literary, sometimes rational; sometimes pragmatic, sometimes only fuzzy; but as with everything: the more we look at them, and talk about them, the better we will get to know them. I hope this book will be a fantastical forest whose creatures may carry an abundance of unknown and exhilarating names.



AFFAIR
WITH
PHANTOMS

Accepting Obscurity

WHAT IS DIGITAL INFRASTRUCTURE AND WHERE IS IT?

In the folk tale *The Trade That No One Knows*,¹ a young man goes out into the world to learn the eponymous trade, so that he may marry the King's daughter. While being locked up in a Giants' castle, Paul, our young man, doesn't heed the Giants' repeat warnings and ventures into three different rooms of the castle that are all strictly out of bounds, obtaining a different item from each room: a halter, a chain and a key, and each at the expense of a severe beating. After securing the third item, and despite having disobeyed the Giants and been reprimanded and punished by them, they let him go, saying, 'You have learnt the trade that no one knows'. But Paul is confused and only wishes he knew what he has learnt. Once outside, he shakes the objects he has taken with him and hurls them to the ground, wondering what good they might do for him. Through a series of transformations and adventures, which have him turn variously into a splendid stallion, a magnificent church, chicken feed and the

all-important key itself, he eventually returns to his human form, beats off an old hag who has been trying to steal him when he was still the key, and wins the heart and hand of the King's daughter. As we might expect, they get married and live happily ever after. Paul turns out to have learnt the trade that no one knows:

"The hag became a hawk, and stooped upon the dove, but the dove became a garland and fell into the hands of the princess, who was walking in the rose arbours. (...) The hag tried to snatch the flowers, but they turned into millet seed, and scattered across the flagstones. The hag became hen and chickens, and pecked at the seed, but the seed was a fox, and it ate the hen and its chicks. Then the fox became Paul."

There are some surprising operations at work here, not unlike some surrealist painting in which a tree's leaves are owls, apples are rocks, and the sky is forever melting. The interesting thing is that all of this is described as a *trade*, rather than as magic, trickery, or metamorphosis. And perhaps there is a reason for this: magic would need a recipe, metamorphosis would carry a motif. But what about a trade? That sounds rather more serious and formal, because 'trade' is an economic term that evokes a value exchange or transaction, and possibly the acquisition of a particular skill. To the very end of the story, it remains obscure what the 'trade that no-one knows' really is. Perhaps it isn't the 'business' of the transformations at all, but the commitment to, and process of, wooing? Or belief in yourself and in any assistance the world may have to offer you? Perhaps it does not matter. Readers accept the story as it is because through it, Paul wins the 'love of the princess', and so we allow the intensity of the storytelling to take over.

Delving into the idea of an *abstract trade* may help us understand how digital infrastructure works. Half a century ago, the meaning of the word ‘infrastructure’ was confined to material. Concrete bridges, criss-crossing railroads, mass transit, public housing, dams, highways and airports. We accessed them quite literally, since a train was a train was a train. By contrast, with the bits of digital infrastructure, trades occur not only between things, but also between different dimensions, systems, people, and abstractions: image to sound, gesture to function, 2D to 3D, algorithm to capital, event to signal. It’s in *formation* steady and quick. It is no longer static (unless we are talking about server farms and ethernet cables exclusively). Digital infrastructure is a flexible mixture of various technologies that seem to engage in a dance with each other: sensing, wireless networking, GPS, information processing and pattern recognition, web services, mobile computing... In each context, it performs a different pattern, forms a new network. And inside the network there can be anything: a hag, a hawk, a garland, flowers, millet seed, chickens, flagstones, a fox, a self or whatever else there is in the world, or indeed what isn’t, but what we can, or think we can, imagine!

But of course digital infrastructure never works randomly. Code strictly pre-defines meta operations, relations and processes, while being able to embrace and index various kinds of data. Because of this openness I inhabit different instances of trade each time: it gives me the experience of digital infrastructure as something obscure and airy.

So the answer to the initial question, ‘What is digital infrastructure and where is it?’ surely lies right here: no one knows exactly, because it’s constantly changing. Nevertheless, it does have its own stability.

Accepting Affection

When, not long ago, I found myself in need of a public phone booth in Zürich – which I realise would *never* happen to a ‘smart’ citizen – I was enchanted by it twice. First of all, I had to find one. This was not difficult: there is usually a pink, purple, or occasionally yellow neon glow over the booth head that is visible from afar and that seems to beckon you hither. Then, I had to enter it. Since the booth has the shape of a transparent cylinder, the glass door is curved. I slid the door along its curvature, stepped inside and closed the door around me. Even before I was isolated from the sounds of the street, I could hear a mellow, melancholy melody spread around me, as if some mist was being sprayed on me from above. It was unexpected, but romantic. Yet as soon as I picked up the receiver, the music gently faded out and was forgotten in a matter of seconds. Having finished my call, I slid the door open and the sound spray returned: the phone booth was saying goodbye to me. How lovely! Thinking about it the next day, I realised it wasn’t really saying goodbye to me, it simply plays music whenever the door is open. And I also knew that this is something that can be easily understood. All of that

notwithstanding, and regardless of the semi-automation trick that I can understand and that I know had ‘fooled’ me, I fell in love with the manner in which this booth had treated me.

A fake baby seal can do even better. Paro, a robot that comes in the shape of a white harp seal, routinely befriends Japanese elderly people without difficulty.² The insanely cute – as is the concept – behaviour of Paro does not need an interaction model. It responds to sound, it makes sounds of its own, it knows its name, and its coat is made of antibacterial fur that is meant to be touched. Everybody knows that Paro is not alive. It’s artificial. A real seal would never hold a plastic nipple in its mouth (this is the charger, by the way), blink its jet-black eyes like a human baby, or wag its tail like a puppy. But this \$6,000 device is designed for pure intimacy. Surrogate it may be, but nevertheless: it is a kind of intimacy.

Now: what if I were to tap into media architecture at the same level of intimacy, with the same kind of pleasure, the same vivid experience? What if I were to do so and at the same time ask myself, ‘Who do I want to meet: an insanely cute robot seal, a mellow musical phone booth, or perhaps a mixture of both? What would a mixture of both be like? Or maybe I want to meet something else entirely? Or all of them? What would I do with them? What kind of conversation do I want to have with them?’

A space like *Ada: The Intelligent Room* (2002; page 254–255) behaves not all that differently from how Paro works. Despite its comparative technological sophistication and complexity, Ada instantly invites us into its universe while playing an intimate game. This is what fascinates me and I want to probe further

into the broader spectrum of such qualities that are not necessarily anthropomorphised, but that do appeal to us in their own way.

I want to examine these spaces and artefacts that talk to me and that make me fall a little in love with them. Is it because of their 'intelligence' or the spark of their 'affection'? How 'genuine' can 'fake' affection – or 'artificial' intelligence, for that matter – be? Am I to find, after a while, that I'm relating to phantoms? Not, maybe, the ones that I fear but the ones that I live with? Are these phantoms going to infiltrate us with their abstractness?

And who wants A. I. (Artificial Intelligence) anyway?
What if all I want is A. A. (Authentic Affection)?

Having Fictitious Affairs

Blending the idea of abstract trade with affective qualities,
I re-inspect our environments through the prism of *affairs*.
Here, then, are some fictitious affairs between human /
nonhuman, human / IoT (Internet of Things), human / animal,
human / infrastructure, human / technosocial object,
human / world:

DOOR CLOSER

A door closer, or a door check, is a mechanical device that automatically closes a door. Scholar Jim Johnson introduces our affair with the door closer as a human / nonhuman symmetry in a journal article, *Mixing Humans and Nonhumans Together: The Sociology of a Door-closer* (1988). According to Johnson, a door closer is a “delegated human character” whose only function is to open and close the door.³ “Delegated”

here means that there used to be a real human being doing the same action, called a 'groom' or a 'gatekeeper', before the door closer took on this job. I am ashamed not to have paid much attention to the humble door closer before, as it contains the key idea of Actor Network Theory (ANT) that treats objects and devices as part of our social networks: 'nonhumans' act, delegate, translate, transform things in a prescribed way. I, as someone who interacts with a door closer, expecting it to open and close the door for me, am also an actor within the network.

(Incidentally, Jim Johnson in turn is a delegated character who does not 'exist in reality': sociologist Bruno Latour delegated this action as a pseudonym.)

IoT AND VERBS

Artefacts in the Internet of Things (IoT) are not conventional delegators. They hyper-act. Instead of delegating an existing action, they invent new ones while most of the time tinkering around, sensing, checking, updating, talking. Look at the bike that tweets its feelings,^{Yes I am Precious, <http://twitter.com/yesiamprecious>} shoes for the blind that find the right way,^{Le Chal, <http://anirudh.me/2011/06/le-chal-a-haptic-feedback-based-shoe-for-the-blind/>} or a key that recognises its own keeper and grants permission to pass accordingly.^{UniKeyPrecious, <http://unikey.com/>} These verbs – 'tweet', 'find', 'decide' – are not actions we ordinarily expect from a bike, a pair of shoes or a key. The objects still fulfil their primary roles, but the new verb seems to lift them to the level of extraordinary actors. Indeed, nonhuman actors are searching for fresh verbs to invite us to a plethora of new activities: mix, roll, hold, knead, read, project, sing, compliment, match,

erase, store, cut, modulate, stretch, hook, help, drop, check in, check out...

HORSE WHISPERING

From a horse's perspective, horse whispering could be a very serious matter. It has nothing to do with technological invention, but is in fact an 'affair-ical' invention all of its own character. Science fiction writer Bernard Werber offers his account of horse whispering, while speculating about an unusual type of relationship between horses and us.⁴ Horses in general, but especially smart ones, are known to be curious about the external world, and when this natural curiosity is constrained, they may suffer mental instability as a result: blinkers – the eye covers that restrict their field of vision to make them less susceptible to being spooked or frightened – actually drive them crazy. According to Werber, by whispering in a horse's ear, the horse whisperer can build a special relationship with the animal that goes beyond that of the exploiter and the exploited. By and by the horse accepts this approach and way of communicating, responds to it positively and begins to effectively 'overlook' the fact that a human being curtails its natural aspiration to discover the world on its own.

BIG BROTHER

"Big Brother Is a Lifestyle"

Under this provocative title I find several gadgets featured in a free daily newspaper, October 2015.⁵

Among them: Withings Home,^{<http://withings.com>} which creates a crystal clear video stream from your home day and night, whilst also monitoring its air quality; and PetCube,^{<http://petcube.com>} with which you can not only check on your pet while away from home, but also speak to it and even play with it remotely, using a built-in laser toy.

Big Brother is not an obvious candidate for a lifestyle. Set fictionally in the year 1984, British novelist George Orwell's creation is a terrifying surveillance master.⁶ To its readers in the 1950s, the book may have been not much more than a dystopian scenario and a bleak metaphor, but today, with ubiquitous CCTV and GPS tracking systems and advanced micro-camera technology, Big Brother has not only come to stand for a long-running TV 'reality' show, but also been turned into one of the most frequently deployed media clichés: "Is Big Brother really watching you?", "Are We Living in 1984?"...

What is it that makes Big Brother so compelling as a 'character'?

In his novel, Orwell does not tell us whether Big Brother is a person or not, how he was made or formed, who he actually is. He exists purely as a phenomenon; and there perhaps lies the magic: he's a phenomenon *that watches you*. It should be impossible, or at any rate extremely difficult, to invent such an overarching phenomenon, place it above all other hierarchies, and yet still allow it to mingle with our most trivial cultural references, to establish it as both a powerful and a personal agency. Big Brother as a character is strong and vivid, far from grey; but surely there must be a trick that connects this vividness with the ambiguity of his formal, impenetrable existence. The trick, as far as I can see, is a simple

if supremely effective one: let his temperament be as described by the verb ‘*watch*’, and thus define his character purely as ‘one who watches’, leaving all other details to our stimulated imagination.

After all, our affair with Big Brother is an affair with a phantom, in this case a dark one. I will introduce other phantoms in this Atlas: Scheherazade, Dracula, Orlando, The Last Leaf, Morel’s Machine, God...

WRANGLERS

Bruce Sterling, a science fiction author and design critic, calls people who ‘hassle with spimes’ ‘*wranglers*’. Introduced in the non-fiction book *Shaping Things* (2005), the term ‘spime’ – a contraction of the words ‘space’ and ‘time’ – describes an abstract, speculative object in our techno-society that is a “material instantiation of an immaterial system;”⁷ therefore it is not an object in the strict sense and always, but only when it ‘has to be’. Thus, spimes go beyond artefacts, machines, products and gizmos.⁸ RFIDs are the most familiar example of spimes. A spime can be ‘instantiated’ only through me and so it is tied to my identity and has its unique ID code that is named and tracked through space and time. What do I *wrangle* then? I negotiate the nature of my stake holding, my desire, my interest, through the dynamicity and connectedness of spimes. As spimes interact with the immaterial world through my own identity, I have a chance to extend my limits beyond merely that which I can hunt, buy and consume; this is the core activity of *wranglers*.

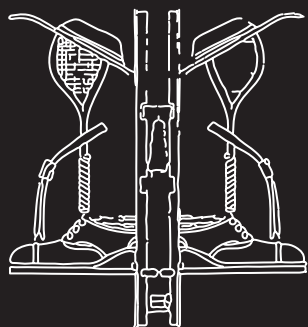
BUBBLES AND SPHERES

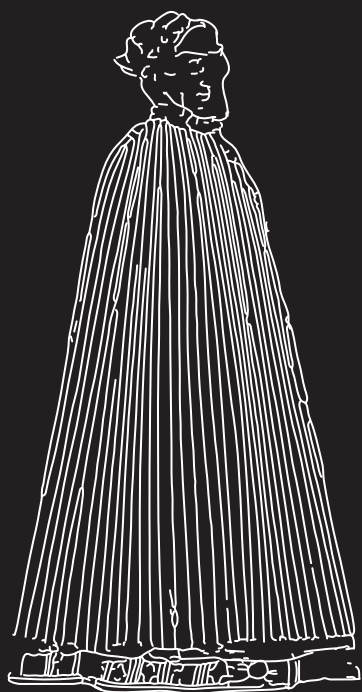
Philosopher Peter Sloterdijk talks about our affairs with enclosed spaces – from wombs, pods and domes to couples, federations, global corporations – in the most abstract and intimate sense. In his *Spheres* trilogy, Dasein is an intrinsically spatial affair: “Being-in-the-world is being-in-spheres.”⁹ Inside the sphere, there is not just one being, there are others as well, so we coexist. It’s social, but also climatic and atmospheric. We are very much used to this sensation.

It is not too difficult to reflect Sloterdijk’s sphereology in the digital world. The digital world similarly has symbolic spheres, narrative bubbles, climatic encryptions, geodesic domes of data, co-constituted and co-connected foams. Does that mean, then, that all these efforts and organisations equally are headed towards possession of their own authentic and ecstatic sense of being?









Scheherazade

Who could bring himself to kill Scheherazade? The stories she tells are so fascinating, and with each one she gets just to the middle before she pauses and invokes the break of dawn as her reason for not continuing, until the following night. The pleasure of hearing how the story ends is suspended, and before anything untoward might cross the King's mind, the new pleasure of a new story is on offer, but only if she lives. What Scheherazade does for one thousand and one nights¹⁰ is to *stretch* each night, to survive in the face of a rule and a set pattern that demands her death; it is to overcome authority and to break the boundaries set for her by this authority. But it's not that easy: Scheherazade has to fine-tune a plot here and there, adjust her tone, reading the King's countenance and his reaction each night, lest she should anger or bore him and he cry 'enough!' And so in this kind of story, invented, embodied each night afresh, there is no real climax, there is only a continuation of curious and entertaining events that may go on for as long as time itself, just as long as the listener wants to hear more. And thus Scheherazade, the irresistible story teller, softens, heals and wins over the King's heart.



Open up

Unwind

Relate

Tinker

Connect

Stretch

