

DATA BODIES ON THE DISSECTION TABLE

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Submitted: <leave for Editor to date>

Abstract

Depictions of the medical body have always exceeded analogue, communicative roles, both reflecting and contributing to ideas about sickness and selfhood. In contemporary biomedicine, the proliferation of data across multiple interacting scales poses additional challenges and opportunities for art and design practice. This paper reports on ‘The Data Body on the Dissection Table’, a public event co-organized by Medical Museion and Leonardo/OLATS in which interdisciplinary scholars and practitioners came together to discuss how biomedical data is represented, and what kind of body is thus revealed. I also raise some questions about the locus of critique in the configurations of disciplinary expertise and imagined audiences invoked by the event.

Keywords: data, interdisciplinarity, visualization, science communication, interaction design, bioart, genetics, microbiome

The Body in the Data

Dissection reveals what lies beneath the skin, but for a brief moment in time, and for a privileged few. Depictions [1], models, and preservations have thus long been used to share what dissection uncovers; from ancient anatomical drawings to today’s virtual 3D anatomies. In the 18th century skinned “*écorché*” figures and anatomical waxes were constructed to reveal systems of interlocking bones, balanced pairs of muscles, and delicately woven tracteries of nerves and blood vessels. Today, the live imaged body joins the unraveled and engraved corpse, *doppelgängers* of the present/future grasped in patients’ hands and hard drives.

But these apparently analogue others – recognizable pictures of parts of the body – represent only a tiny subset of the vast quantities of data collected by contemporary biomedicine. Systems and network approaches aim to map out nodes, and the relationships that throw them into functional motion, on many interacting scales; from genetic variants, protein expression, hormone levels, and microbial communities, to physiological indicators, symptomology, experience, and environment. As ever more data is collected, new methods are needed for its processing, integration, depiction, and communication.

Yet, and as ever was, the collection and presentation of bodily data is not just a matter of objective world-sifting made visible through necessary sensory prostheses. Notions of the medical body that structure research enter into looping relations [2] with conceptions of the self, social practices of responsibility and care, and desires for visibility and control [3]. For instance, a medicine integrating genetic, physiological, and symptomatic levels promises more personalized diagnosis, prevention and treatment. But personalized predictions rely on previous aggregation of data from many bodies – the uncertainties of extrapolation, and the politics of responsibility for individual health, are still present if less visible [4]. Network medicine also promises to lessen the subjectivities of diagnosis, replacing a purportedly anachronistic focus on organs and symptoms with classifications in a molecular landscape [5]. But the secret landscape of the sickened cell is not surveyed by dispassionate automatons; choices of who, when, and what to study still abound. Visualisation and other forms of design and artistic engagement can either smooth over, or bring to light, these contingent wrinkles in the passage from data chaos to known and numbered constellation.

The Anatomists

On June 4th 2013, the 18th century anatomical theater of the University of Copenhagen’s Medical Museion and Leonardo/OLATS hosted a public dissection of the data body and its depiction [6]. Below, I briefly summarize the four presentations, and point to some of the key issues that arose in discussion. As co-organizer of the event and a scholar of science communication, I also raise some questions about how the event itself framed conversation about the locus of interdisciplinary critique.

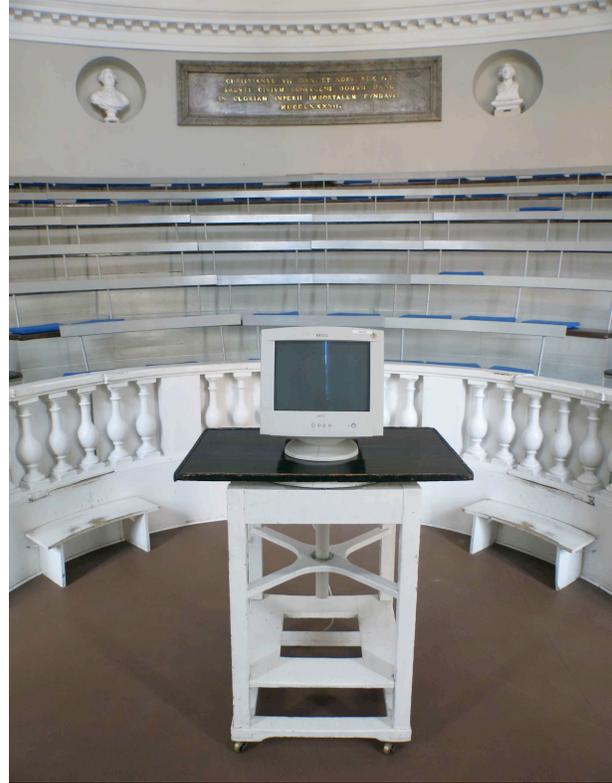


Fig. 1. Data Body on the Dissection Table, shot in Medical Museion’s anatomical theater, www.museion.ku.dk (© Louise Whiteley)

Albert-László Barabási, pioneer of network science, began the evening by using an array of engineering and cartographic metaphors to argue that disease should be mapped in a molecular coordinate system [5]. He presented the body as a car with a full list of (genetic) components, but without a wiring diagram. And as a city that needs mapping on a scale that will allow us to navigate more effectively through its neighborhoods: just as we know that a performance of Shakespeare is likely to be found in the theater district of Manhattan, future “networkologists” will know which neighborhoods of the genome should be visited to find and treat a particular disease.

Annamaria Carusi, philosopher of medical science and technology, examined a promotional video for the Digital Patient project [7], which depicts a future in which each of us will have a virtual body derived from ‘real’ data, allowing simulation of our future health and the effects of different treatments. She argued that such depictions should be seen not just as explanatory tools, but as rhetorical devices that persuade us to donate data and divert funding to a project that prioritizes particular, quantifiable views of the self and its treatment. She also pointed out the ethical quandary of a representation aiming to become so accurate as to be *equivalent to*

us, and argued that degree of representational accuracy is in any case an impoverished model for our relations to the networked digital avatars that haunt contemporary life.

Jamie Allen, artist and interaction design researcher, argued that the data body is not revealed as a qualitatively new, quantitative self. Rather, data is a medium like any other. As a mirror or photograph interrupts feedback loops between our self perception and the doppelgänger depicted in the image [8] so does a genomic sequence reveal something new about who we are and perturb our sense of what is there to be found, whilst also revealing its own limitations. Allen introduced doppelgängers on a range of scales, from a high resolution scan of his own head embedded amongst the “digital anarchic” of his laptop, and Larry Smarr’s attempt to collect all possible biological data on his “Quantified Self” [9], to patterns of technological use in healthcare or museum environments. In these settings, designers and artists acted to combine biological and social data into perceptible, actionable, form, but also to reveal the distortions of each particular media mirror.

François-Joseph LaPointe, biologist and bioartist, presented his plans to construct a “metagenomic family portrait” of himself and his wife, plotting out the unique but interacting microbial environments of their guts, anuses, and genitals over a year, and using the resulting data in a dance performance. A very personal data portrait, but in the tradition of scientific self-experimentation (here sanctioned by his role as artist), also aiming to produce generalizable knowledge.

The Critic Multiple

The four presentations failed to deliver a singular diagnosis. Bodies precipitated out of diverse mixtures of data, into diverse problem spaces, and via diverse media. And the discussion did not explicitly pit these configurations against each other – there was general agreement that greater integration of kinds of data (and thus disciplines) is the goal, and that art and design can aid both as communication tool and critic.

Yet this foundational gesture of accord is an easy one to make. It doesn’t specify the conceptual negotiations and methodological pragmatics of interdisciplinary working, determine research priorities, or resolve the timescale on which critique is sanctioned. For instance, when asked whether an empirical description of the self is possible, and where the boundaries of (epi)genetic networks should be drawn, Barabási’s reply was that these questions are premature. But other speakers were concerned with current effects of future scientific visions, on both cultural conceptions and developing research practices. For LaPointe, metagenomics will revolutionize our understanding of health and sickness, and this progression can be better culturally embedded via artistic encounters that both entertain and educate. For others this was too celebratory a role for art to play: creating space for public conversation about a future containing x can imply that the referent itself is no longer up for debate. Audience members presented other concrete examples where they felt a ‘data body’ might miss something out – the placebo effect, and the design of immersive computer games. But across all these cases, whose practice should be perturbed by recognitions of omission was the elephant in the room.

The Implied Audience

These dilemmas of responsibility are not new. What was perhaps most interesting about their recapitulation here was the multiplicity of professional : critical roles. Yet the event’s rather exotic menagerie was of course a distorted reflection of

more typically delineated art, design, and media practice – we chose the participants precisely because their interests were hybrid and overlapping. In the words of moderator and art historian Max Schich, the Arts, Humanities, and Complex Networks workshop with which the event was associated [10] was a space where “no one has to be embarrassed about being interested in everything”. As such, you could argue that such an event might in fact serve to make the need for critical engagement seem *less* urgent. But this depends on how you imagine your audience – if they are yet to be persuaded that there is anything at stake or that can be achieved, a (perhaps at times frustrating) interdisciplinary conversation might at least make the issues seem serviceable. Or if they are imagined to be already on side, the purpose is stimulation and connection, and persuasive rhetorics act more as ritual decoration.

Indeed, the audience; those imagined to be affected by depictions of the data body, was the most shadowy figure of the evening. Whether an abstract general public, an art viewer, a design company, or even those in the room, I think the creativity and dissent that might lie in interpretation and affective response was, and often is, underestimated [11]. People might find pleasurable discomfort in a film intended to be dystopic, or make their own sarcastic critique of a promotional campaign. This does not argue for passivity, or for a vague politics of diversity that simply promotes a range of public depictions of science so that people can “make up their own minds”. There are still arguments to be had over the allocation of resources in relation to intended effects. Rather, it is to argue that the audience in the room were as mysterious as the data body being dissected in front of them. And to argue for seeing the responses of all participants to each others’ visions, whether in bodily reactions, formal retort, or casual conversation over drinks, as the event itself making tiny fractures in the feedback loops between our disciplinary self-perceptions and the ways they are reflected back to us.

References and Notes

1. “Depictions” is used throughout for convenience, but could refer to works made in any medium and to multisensory responses to them.
2. Ian Hacking, *The Social Construction of What?* (Cambridge, MA: Harvard University Press, 1999).
3. José van Dijk, *The Transparent Body: A Cultural Analysis of Medical Imaging* (Seattle, CA: University of Washington Press, 2005).
4. For an example of this argument in the neuroscientific domain, see Nikolas Rose, “‘Screen and Intervene’: Governing Risky Brains,” *History of the Human Sciences* 23, No. 1 (2010) pp. 79-105.
5. Albert-László Barabási, Natali Gulbahce and Joseph Loscalzo. “Network medicine: a network-based approach to human disease,” *Nature Review Genetics* 12, (2010) pp. 56.68. See www.barabasilab.com for other references.
6. Details of the event, speakers’ affiliations, and supporting institutions, can be found at: <http://www.olats.org/studiolab/databody.php>
7. Project website at: <http://www.digital-patient.net/>. Video accessed on July 22nd 2013 at: <http://www.youtube.com/watch?v=tx9ZXTInVmg>.
8. Friedrich Kittler, *Optical Media* (Cambridge, UK: Polity, 2010) p. 181.
9. See <http://quantifiedself.com/larry-smarr/> for documentation.
10. Workshop website at: <http://artshumanities.netsci2011.net/>
11. I have written on this theme in relation to functional neuroimaging in: Louise Whiteley, “Resisting the Revelatory Scanner? Critical Engagements with fMRI in Popular Media,” *BioSocieties* 7 (2012) pp. 245–272.