

DHI¹ @ CHI

Matthew Lee-Smith, Tracy Ross

School of Design and Creative Arts, Loughborough University, Loughborough, UK,

m.l.smith@lboro.ac.uk, t.ross@lboro.ac.uk

Yu-Ting Cheng, Mathias Funk

Industrial Design Department, Eindhoven University of Technology, Eindhoven, NL

y.cheng@tue.nl, m.funk@tue.nl

1 THREE QUICK CHATS ABOUT HDI

“As a nascent field, HDI is still very much under development – there are no books!” – Mortier et al., Chapter 41, The Encyclopedia of Human-Computer Interaction, 2nd Ed. (technically not a book), 2016. Interacting with data is an ancient practice that predates humans, all beings must collect and understand data/information in some way to survive. However, formal interactions have begun to interest the design research community only just now – according to planetary timescale. Data and our interaction with it have played an increasingly powerful and intrusive role in our Everyday, up to the point that the design research community needs to find new ways to deal with human-data interaction. In three quick chats, we will unfold developing perspectives on HDI that, we hope, will help foster constructive discussions in the workshop.

1.1 Are we (now) too Afraid of Data?

Data as a pure concept, a machine-readable recording about *something*, is neutral. However, once humans collect them, select them, analyse them, and form interpretations, we in some way influence them, knowingly or otherwise. Problems occur, problems which we talk about often but do not seem to learn from as often, when we think of the data *we generate* as neutral and use it as such without scrutiny. Furthermore, we are increasingly protective over our personal data (e.g. [2,5]). In many ways this is the right thing to do as governments and corporations can use that data to great (possibly malicious) effect with examples such as the Cambridge Analytica scandal still fresh in the mind of many. However, has the power of data spooked us into being overly cautious with data? Do we now handle data like a dangerous, or even radioactive material, protecting ourselves with ever more layers or systems (of red tape) such as the General Data Protection Regulation (GDPR)? In doing so, has this limited the ability for individuals or non-profit and non-manipulation-oriented collectives to use data to its full potential? In other words, has data protection become an imperative, a dogma that can be and will be wielded to crush any constructive use of data? Moreover, has framing data in this way led us to a point where we see data as something that has to be useful to us? Must data, through collection, aggregation, analysis, storage, and prestation, forever be in our control, present us with insights, or afford us the ability to look back on our pasts [3,7,8,9]?

1.2 Academics: Put Your Money Where Your Mouths Are!

Compared to industry and governments, academic has found their own ways to explore and investigate data and data practices. However, many notable approaches have been more circumstantial than integral, more talking and

¹ Pronounced D-HI or DIE depending on what you prefer.

designing about than with. Many data design projects ultimately focus on awareness and insights as impact, but is this enough? Shouldn't society expect more? Shouldn't we aim for putting things into practice to lead to something else than exhibitions and installations? We need to find a new role for academic data design that engages with the realities of data use in the Everyday and engages in constructive change. At the same time, the design research community need to look beyond the (industrial) mainstream and shed light to alternative perspectives of data that have no apparent utility. Why? Our interpretation of what data is, is commonly coloured by experience and background. What we consider useful or harmful, and what we are given by others. When talking about large-scale data collection and big data, we imply information asymmetry and some form of exploitation to happen. But what about data about nothing, or data that is about use that we "burn" to achieve something else, such as an interesting experience/interaction – data as an experiential resource that can be collected and used by (non-IoT) technological objects to create experiences beyond analysis or understanding data and then destroy it (which is far more complex than one would imagine). What about data that do not represent facts? How to reuse the trash data (inaccurate, incomplete, outdated data) into a meaningful form to spark some possible applications? (e.g. creativity for novel inspirations, art pieces; reflection on learning bias from AI).

1.3 HDI Beyond Waves and Turns

In HCI, we often talk about "waves" in order to describe the prevailing thought of an era including the "correct" way to conduct or focus on work [1,4,6]. This has merit. It sets a tone or unifying guidelines that can create a collective direction in research. This can create situations where new ways of approaching or perceiving a field can be rejected for not conforming to the current wave. It can also create an environment where we are always on the lookout for the next wave as, although not publicly expressed, much academic kudos can occur from coining the next wave and having it stick (and cited). This echoes issues from other fields, such as in zoology with "taxonomic vandalism" where people are seeking to name new species above all else. At some point, probably soon, someone will be describing the first "wave" of HDI, copying the HCI paradigm. This description might be in recognition of the current "wild west" or the "bandits vs the law" state of the field with various individuals or collectives trying to use data for their own means, sometimes maliciously, and the law is trying to catch up with them to stop it. We could call this "Tales from the Data Frontier" wave, even we are not immune from throwing down terms. Alternatively, we could see this era as one of analytics, of seeking larger, "better" data sources until we can understand the world, trying to truly achieve what Mien Herr set out to do with maps in Lewis Carroll's book, *Sylvie and Bruno Concluded*: *"Then came the grandest idea of all! We actually made a map of the country, on the scale of a mile to the mile!" "Have you used it much?" I inquired. "It has never been spread out, yet," said Mein Herr: "the farmers objected: they said it would cover the whole country, and shut out the sunlight! So we now use the country itself, as its own map, and I assure you it does nearly as well."* Except with data, we do not have to worry about blotting out the sun, but we do have to worry about making sense of it all as we humans cannot hold or understand "raw" data on a globe scale. However, there is bias in the data and bias in the analysis, so we find ourselves on a never ending journey, we shall call it "The Quest for the Unbiased Truth". If waves are not your penchant, then perhaps you prefer "turns", such as the material turn, digital turn, experiential turn, practice turn, etc. or movements, paradigms, or even shifts! But what happens if we do not want to embrace a direction? What if the point is to encourage debate and disagreement about what the correct use or purpose of data is? This could instead be a world of competing and contrasting ideas of data that seeks to be heterogenous, discursive, and critical.

REFERENCES

- [1] Susanne Bødker. 2006. When Second Wave HCI meets Third Wave Challenges. *Proceedings of the 4th Nordic conference on Human-computer interaction changing roles - NordiCHI '06*, ACM Press, 1–8. DOI:10.1145/1182475.1182476.
- [2] Amir Chaudhry, Jon Crowcroft, Heidi Howard, et al. 2015. Personal Data: Thinking Inside the Box. *Critical Alternatives* 1, 1: 4. DOI:10.7146/aahcc.v1i1.21312.
- [3] Chris Elsdén, David S. Kirk, and Abigail C. Durrant. 2016. A Quantified Past: Toward Design for Remembering With Personal Informatics. *Human-Computer Interaction* 31, 6: 518–557. DOI:10.1080/07370024.2015.1093422.
- [4] Christopher Frauenberger. 2019. Entanglement HCI the next wave? *ACM Transactions on Computer-Human Interaction* 27, 1: 1–27. DOI:10.1145/3364998.
- [5] Sarah Gold. 2014. The Alternet by Sarah Gold. *In conversation with the 2014–15 Future Pioneers*. Retrieved from <https://vimeo.com/132311291>.
- [6] Sarah Homewood, Amanda Karlsson, and Anna Vallgård. 2020. Removal as a Method: a Fourth Wave HCI Approach to Understanding the Experience of Self-Tracking. *Proceedings of the 2020 ACM Designing Interactive Systems Conference*, ACM, 1779–1791. DOI:10.1145/3357236.3395425.
- [7] Richard Mortier, Hamed Haddadi, Tristan Henderson, Derek Mcauley, Jon Crowcroft, and Andy Crabtree. 2016. Human-Data Interaction. In M. Soegaard and R.F. Dam, eds., *The Encyclopedia of Human-Computer Interaction*. Interaction Design Foundation.
- [8] William Odom and Tijs Duel. 2018. On the Design of OLO Radio: Investigating Metadata as a Design Material. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems - CHI '18*, ACM Press, 1–9. DOI:10.1145/3173574.3173678.
- [9] Eliane Zambon Victorelli, Julio Cesar Dos Reis, Heiko Hornung, and Alysson Bolognesi Prado. 2020. Understanding human-data interaction: Literature review and recommendations for design. *International Journal of Human-Computer Studies* 134: 13–32. DOI:10.1016/j.ijhcs.2019.09.004.
- [10] Dennis M. Weiss, Amy D. Propen, and Colbey Emmerson Reid. 2010. Introduction: Mind vs. Thing, and Other Central Events of the Twenty-First Century. In D.M. Weiss, A.D. Propen, and C.E. Reid, eds., *Design, Mediation, and the Posthuman*. Lexington Books, IX–XXXVII.
- [11] Mikael Wiberg. 2014. Methodology for materiality: interaction design research through a material lens. *Personal and Ubiquitous Computing* 18, 3: 625–636. DOI:10.1007/s00779-013-0686-7.