The Futures of Computing and Wisdom

Daniel Pargman
KTH Royal Institute of Technology
Stockholm, Sweden
pargman@kth.se

Elina Eriksson
KTH Royal Institute of Technology
Stockholm, Sweden
elina@kth.se

Rob Comber
KTH Royal Institute of Technology
Stockholm, Sweden
rcomber@kth.se

Ben Kirman
University of York, York, UK
ben.kirman@york.ac.uk

Oliver Bates
Lancaster University,
Lancaster, UK
o.bates@lancaster.ac.uk

Abstract

There has been an increasing interest in discussing the consequences of the technologies we invent and study in HCI. Whether it is climate change, ethical computing, capitalist and neo-liberal models of commerce and society, grassroots movements, big data or alternative paradigms in distributed systems, this workshop will invite participants to explore these consequences and ask how we move forward with responsibility and new forms of knowing and knowledge. We invite participants to join us, as we cast forward fifty years to 2068 to imagine the future of wisdom, and to reflect on how we got there. By writing Fictional Abstracts, an abstract from a research paper yet to be written, we will unpick critical tensions in the advancement of computing over the next decades. The workshop will develop perspectives on the futures of computing and critically reflect on the assumptions, methods, and tools for enabling (and disabling) such futures.

Author Keywords

Wisdom, design fiction, fictional abstracts, ethics, sustainability, politics, justice, social action, social change

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Workshop description

There has been an increasing interest in discussing the consequences of the technologies we invent and study in HCI research, including non-technical dimensions (societal, ethical, normative) [7, 8]. This is also apparent in the surge of interest in Design Fiction during the last 10 years [2, 5, 11]. Design Fictions have traditionally emphasised near-future developments, implications and consequences, but what about developments that lie one or several decades into the future? If we want to think about and discuss how computing will affect and change society decades from now, the focus cannot be on the technology itself but rather on other *types* of question. We will therefore organize a NordiCHI workshop on the theme "The Futures of Computing and Wisdom". What will be the long-term consequences of HCI, AI, IoT, Big Data and Smart Technologies 50 years from now - in 2068? This theme is inspired by the fact that the journal "Futures" - the premier academic journal in the field of futures studies - this year celebrates its 50th anniversary with a special issue on the theme "Wise Futures" in the year of 2068.

Wisdom relates to the ways in which we make decisions and act, based on our experiences, knowledge and reasoning. As a critical lens on computing, it includes both questions on our epistemologies (i.e. ways of knowing) and our ontologies (i.e. what is and can be). For instance, Augmented Reality proposes new forms of 'hybrid' objects that are both 'real' (i.e. we can interact with them), and 'imagined' (i.e. they are not physical), that interact with our environments and change our perceptions and sense-making in those environments. Past and future trends in computing suggest new forms of knowing that for example include sensor-knowledge, artificial intelligence, and distributed cognition. These create different forms of being and meaning-making that challenge what it can mean to be human, and how humans make meaning. Big data, for instance, changes how we can understand and manage issues such as risk assessments, crisis response and population health. It is these new forms of wisdom - new ways of computing knowledge, creating experience, and crafting reasoning - that this workshop will explore.

The fact that the Futures special issues (and the workshop) aims at discussing the year 2068 creates particular challenges for a field that is as dynamic as computing. A 50-year timespan is unusual in computing (but not unheard of, see [4]). Such a long timespan makes it unsuitable to focus on the future of specific technologies and more suitable to discuss how computing can support higher-order goals such as, in our case, "wise futures" and "the future of wisdom". To imagine and envision that far ahead, we need inspiration and visions that explore potential roles for computing in relation to how wisdom can be achieved, or, in some cases, how computing might factor into living with the consequences of not achieving higher levels of wisdom.

The workshop is a Design Fiction workshop but we will more specifically utilize fictional abstracts - fictive abstract from research papers that have yet to be written - to encourage researchers to take ethical and societal implications of their and others' research into consideration. The methodology of using fictional abstracts has been used in a handful papers to date [1, 3, 10] – with Blythe [3] using the alternative term "imaginary abstracts"). Fictional abstracts have several characteristics that we find attractive for the purposes

of the workshop, of which the most important is that they allow researchers to sidestep a number of necessary but sometimes tedious barriers - like for example actually performing the research reported upon!

Fictional abstracts allow researchers to explore possible consequences of the technologies they themselves are developing by conducting critical thought experiments [9] and work through positive as well as negative implications of new and emerging technologies. We argue that some research questions (including those that address researchers' fears, uncertainty and doubt) systematically - and for systemic reasons - remain absent from research papers and research grant applications. Fictional abstracts allow writers and readers to shift their attention from the incremental developments of today's technological capabilities to also consider what the realization of these technologies can imply. For instance, how do we position ourselves in relation to massively increased surveillance that nominally has the citizens' best interests at mind? Fictional abstracts give us the ability to imagine a world where proposed research agendas have been completed and allow us to examine possible consequences for society at large without having to explicitly or implicitly incorporate requirements or wishes from industry, politicians, or funding agencies.

While researchers have much practice at writing scientific texts, they do not necessarily have experiences from other genres (for example film, see further [6]), but this discrepancy is bridged by prompting researchers to work with and extend a genre they are familiar with, i.e. that of writing abstracts for scientific papers. The constraints of this genre provide a suitable scaffold that both reassures and encourages researchers to seize the freedom to speculate and think freely. Consequently, we argue that fictional abstracts both represent an extension of, and an important contribution to the Design Fiction discourse. The credibility that is lent by the familiar format of a research article abstract can also assist in overcoming tendencies to dismiss long-term speculation.

To apply to the workshop, prospective participants' will each submit a fictional abstracts. These will be distributed to all participants before the workshop. During the workshops, workshop participants' submitted abstracts will be compared and discussed in terms of the consequences of the (fictive, future) research presented in the abstracts. Furthermore, the workshop participants will also explore the usefulness of using fictional abstracts to explore issues around wise futures, and discuss in which settings this methodology could be beneficial.

This workshop is future oriented. Principally, it will provide a long-term benefit for the HCI community through its critical reflection on how we move forward responsibly. We will outline the epistemological challenges in the future of computing, and the ontologies which support or question them. In understanding where we see ourselves in 2068, we can begin to work towards particular conceptualisations of computing and what it means to contribute to knowledge in the HCI of the future. We will document the imagined research of the future and the future of our research, and, through this, we will highlight HCI and computing's role in the making of particular utopian and dystopian futures. We can begin to unpick the immediate and imagined ethical issues in our work,

and we expect researchers to engage deeply with the challenges of their own research and our field. In the era of 'fake news', 'deep fakes', systematic (and unethical) corporate data-mining, and the rise of data-driven surveillance, the power to re-imagine the wise(r) future of computing is timely and necessary.

References

1. Eric S. Baumer, June Ahn, Mei Bie, Elisabeth M. Bonsignore, Ahmet Börütecene, Oguz Turan Buruk, Tamara Clegg, Allison Druin, Florian Echtler, Daniel Gruen, Mona Leigh Guha, Chelsea Hordatt, Antonio Krüger, Shachar Maidenbaum, Meethu Malu, Brenna McNally, Michael Muller, Leyla Norooz, Juliet Norton, Oguzhan Özcan, Donald J. Patterson, Andreas Riener, Steven I. Ross, Karen Rust, Johannes Schöning, M. Six Silberman, Bill Tomlinson, and Jason Yip. 2014. CHI 2039: Speculative Research Visions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI '14), 761-770. ACM.

2. Julian Bleecker. 2009. Design Fiction: A short essay on design, science, fact and fiction. *Near Future Laboratory*, 29.

3. Mark Blythe. 2014. Research through design fiction: narrative in real and imaginary abstracts. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI '14), 703-712. ACM.

4. Peter J. Denning, and Robert M. Metcalfe. 1998. *Beyond calculation: The next fifty years of computing*. Springer Science & Business Media.

5. Anthont Dunne, and Fiona Raby. 2013. *Speculative everything: design, fiction, and social dreaming*. MIT Press.

6. David Kirby. 2009. The future is now: Diegetic prototypes and the role of popular films in generating real-world technological development. *Social Studies of Science*, 40, 1: 41-70.

7. Jennifer Mankoff, Jennifer A. Rode, and Haakon Faste. 2013. Looking past yesterday's tomorrow: using futures studies methods to extend the research horizon. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI '13), 1629-1638. ACM.

8. Daniel Pargman, Elina Eriksson, Mattias Höjer, Ulrika Gunnarsson Östling, and Luciane Aguiar Borges. 2017. The (Un)sustainability of Imagined Future Information Societies. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (CHI '17), 773-785. ACM.

9. Heikki Patomäki. 2006. Realist Ontology for Futures Studies. *Journal of Critical Realism*, 5, 1: 1-31.

10. Birgit Penzenstadler, Bill Tomlinson, Eric Baumer, Marcel Pufal, Ankita Raturi, Debra Richardson, Baki Cakici, Ruzanna Chitchyan, Georges Da Costa, Lynn Dombrowski, Malin Picha Edwardsson, Elina Eriksson, Xavier Franch, Gillian R. Hayes, Christina Herzog, Wolfgang Lohmann, Martin Mahaux, Alistair Mavin, Melissa Mazmanian, Sahand Nayebaziz, Juliet Norton, Daniel Pargman, Donald J. Patterson, Jean-Marc Pierson, Kristin RoherM. Six Silberman, Kevin Simonson, Andrew W. Torrance, and André van der Hoek. 2014. ICT4S 2029: What will be the systems supporting sustainability in 15 years. In *Proceedings of the 2014 conference ICT for Sustainability* (ICT4S '14), 30-39. Atlantis Press.

11. Joshua Tanenbaum, Karen Tanenbaum, and Ron Wakkary. 2012. Design fictions. In *Proceedings of the Sixth International Conference on Tangible, Embedded and Embodied Interaction* (TEI'12), 347-350. ACM.