Making "World Machines": Discourse, Design and Global Technologies for Greater-than-self Issues

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ABSTRACT

The *world machine* is a new archetype for a socio-technical system drawing together a group of tools that combine computational powers with a social agenda of cross-world collaboration in resistance to dominant market rhetoric. Specifically, we look at how powers to connect, sense and infer can be combined and turned to crowd-sourcing public engagement with shared world issues - as an alternative to business-as-usual in the context of developing and deploying networked technology. We combine theoretical aspects of *world machines*, such as what a political entity of this kind might seek to do, and practical exercises that focus on design, with a view to exploring viability and examining what a related research agenda might involve.

Author Keywords

Sharing; ecological; environment; sensing; inference; networks; neoliberalism; politics; archetypes; values.

ACM Classification Keywords

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

INTRODUCTION

This workshop builds on the concept of the *world machine* - a new archetype for socio-technical systems designed to draw together tools that combine computational powers with a social agenda of cross-world collaboration in resistance to dominant market rhetoric. New powers of computation offer the potential, in combination, to herald new relations and new ways to think about our world as a series of relations. But this requires particular social and technical choices – otherwise, we have just another giant

surveillance or marketing system. We intend to explore what characteristics make this class of system radical, drawing on traditional critical theory, the notion of care [9, 17, 18] and the ecological politics of Morton [15] and Bennett [3]. Specifically, we look at how our powers to connect, sense and infer can be combined and turned to crowdsourcing public engagement with shared world issues as an alternative to business-as-usual.

The workshop will use the idea of *world machines* as a thought experiment to generate critical alternatives to our current global politics, suggesting that such a concept can be 'explanatory, practical, and normative' in Horkheimer's sense of critical theory, ie: 'it must explain what is wrong with current social reality, identify the actors to change it, and provide both clear norms for criticism and achievable practical goals for social transformation' [5]. It is an opportunity to allow 'the inherited forms of solidarity and struggle to morph, hybridize or even completely dissolve in the process of encountering and appropriating the new toolkits, conceptual frames and spatial imaginaries of the present' [11]. To play with this opportunity, we juxtapose the shared interests of a world citizenry (with custodianship for the rest of the planet) and the rhetoric of sharing now appearing in the *sharing economy*, which is delivering new markets and commercializing formerly free practices [14].

BACKGROUND

Light wrote in 2011 [13]: 'If we combine the potential of connected groups with that of connected data, the mix could make a powerful force for informed change.' New tools give us a new ability to trace actions and manage attribution. Connected data points to cause, effect and correlations more powerfully, showing the impact of activity taking place in one situation in terms of social, environmental or economic change elsewhere. We can use computation to infer patterns from sensor-compiled datasets, with 'social networks' as a platform for generating, sharing and acting on global data. Systems that articulate these relations, as well as engender them, can be seen as a class of political action related to maker/making movements, with a particular ecological vision that resists

current notions of progress and economic good (and the huge environmental footprint these are generating).

In the workshop, we will not be focusing on technical specifications (though these are developing rapidly), but the uses to which such socio-technical systems can be put and how the introduction of a specific way of thinking about the potential of networks might contribute to a new way of thinking about global relations.

A *world machine*, then, is a tool that can equip members of world society [3] with access to the means to sample, test and report on their circumstances and what they see (or can sense with tools), as well as to find each other, analyze the meaning of the data and link up for action upon what is found. This has certain preconditions, such as the potential to scale (see [8]); the blend of local and global and/or the prioritization of local indigenous perspectives to resist (or problematize) universalizing perspectives (eg [19]); the sharing of tools and outcomes; and freedom from imposed incentives. It may also specifically embed a rhetoric of shared or greater-then-self issues. We can point to examples, of data-gathering as public collaboration like searching for extra-terrestrial life (www.seti.org), Wikipedia (www.wikipedia.org), the Personal Genome Project (www.personalgenomes.org), or the global water quality project (www.worldwatermuseum.com). And we can note that closed, market-driven crowd-sourcing tools, like Mechanical Turk (www.mturk.com) critiqued here [12], and Taskrabbit (www.taskrabbit.com), that source and share out cheap labor, fail the criteria.

Aoiki et al [1] and DiSalvo et al [6] elaborate on what happens in practice when citizens come together to do environmental monitoring. The organisers recognise that all socio-technical systems are prone to social politics and management issues, and world-spanning tools bring cultural concerns too (eg [13]). This does not negate the adoption of archetypes that help us see how design and politics relate, but forms part of the context. We will consider these practical concerns as part of the workshop.

As well as practical concerns, there are different ways of discussing the political challenges theoretically and we will see how these apply. For instance, Guattari offers a concept of *machinism*, developed with Deleuze, to designate 'every system that cuts off fluxes going beyond both the mechanics of technology and the organization of the organism, whether it be in nature, society, or man' (Deleuze in Guattari 2007). Deleuze and Guattari call for the development of a 'humanist antimachinism', an ecological approach to counter dominant state machines, much in line with the call for *world machines* in this workshop.

Similarly, it is interesting to think about the current processes of subsumption, where collective forms are being commodified through social media, crowdsourcing, and processes of datafication, and societies are being constantly re-organised (since the 1970s and the rise of neoliberalism)

to best serve the world financial markets at the expense of solidarity and human and planetary well- being.

And the question arises as to how far a 'world society' [3], idealistic as such a notion may be, can avoid losing distinctions of culture and place, and protect the local, indigenous perspective from a world-historical logic of world-making, with its colonial undercurrents.

ORGANISATION OF WORKSHOP

The morning will focus on the theoretical aspects of *world machines*. As well as considering uses, the theoretical section will touch on what a political entity of this kind might seek to do, thus including:

a) a critique of neoliberal discourses in interaction design and technology production;

b) an examination of other utopian ecological design visions, starting with Bateson [2], Buckminster Fuller [6] and Papanek [16];

c) a discussion of how discourses surrounding technology become normalized and how we can resist this trend.

The afternoon will involve a practical exercise to focus on design and deployment, followed by a review of learning from our work together. We will make models of the *world machines* we would like to see (however improbable), labelling them with opportunities and barriers, leading to a discussion of viability and what an ensuing research agenda might involve. The annotated models will be available for show at the rest of the conference, if practicable (both in terms of the output and the conference facilities).

Participants will be expected to engage in both parts of the day, though may submit a position paper that emphasises one or other approach, and selection processes will reflect this. Since *world machines* already exist, we will encourage anyone who is building or maintaining one to join in, but the workshop will be open to anyone who has an interest in designing globally and thinking locally and the politics of these interactions, especially if they are alive to the rhetoric involved in the making of technology and the impact of design choices in socio-technical terms.

ORGANISERS

Ann Light is Professor of Creative Technology at the University of Sussex and was principal investigator on the UK Digital Economy's *Design for Sharing* research project and research director on *Fair Tracing* – global research into providing producer-generated provenance information to support ethical buying decisions – as well as several Connected Communities projects looking at how we dwell together in the highly mediated and mediatized world of the 21st century. She is particularly concerned by patterns of inclusion and the politics of design.

Jeffrey Bardzell is an Associate Professor in the School of Informatics and Computing at Indiana University - Bloomington. His research focuses on critical design, research through design, and design criticism, as well as studies of social computing, including maker communities

in the United States and Asia, intimate interaction, and online creative communities. Throughout his work he leverages aesthetic philosophy and criticism to understand how concepts, materials, ideologies, and experiential qualities achieve coherence in design objects. He is co-editor of *Critical Theory and Interaction Design* (MIT Press) and co-author of *Humanistic HCI (Synthesis Lectures in Human-Centered Informatics)*.

Shaowen Bardzell is an Associate Professor of Informatics at Indiana University's School of Informatics and Computing. Known for her work in feminist HCI, Bardzell's research centers on a network of concepts of interest to both feminists and HCI, including scientifically rigorous and socially just research methodologies, emancipatory and participatory social science, human sexuality, marginality, collective creativity, and everyday aesthetics. Recent work has focused on exploring the intersections between HCI's rising interest in social change and feminist social science, care ethics, research through design and critical design, material interactions, and maker cultures in Asia.

Geoff Cox is Associate Professor in the Dept. of Aesthetics and Communication, and Participatory IT Research Centre, Aarhus University (DK), and Adjunct faculty Transart Institute (DE/US). He is also an occasional artist/curator, as part of the self-institution Museum of Ordure that concerns itself with human waste. With Alex McLean, he wrote *Speaking Code: coding as aesthetic and political expression* (MIT Press 2013), and amongst other things is currently working on a multi authored book project about live coding that will explore the 'operative' dimension of just-in-time coding and what it means to be 'radically present' in the world.

Jonas Fritsch is Associate Professor in Interaction Design at the IT University of Copenhagen. He works on a creative thinking of interaction design and affect theory through practical design experiments. He has published around relational and ecological concerns in Participatory Design processes and has extensive experience in addressing experiential qualities in the design of a variety of interactive machines for listening (*Ekkomaten*) and literary interaction (*INK*). He is associate partner in the 7-year Canadian SSHRC research project *IMMEDIATIONS: Media, Art, Event* and associate partner in the EU-project *METABODY*.

Lone Koefoed Hansen is an associate professor in digital design and aesthetics at Aarhus University, working to integrate interaction design, critical theory, computational culture, and art. Also a senior researcher in PIT, Center for Participatory IT, she spends much of her time in an interdisciplinary environment. Latest publications have dealt with feminist design, fabrication and making as a critical practice, creativity discourses, emojis as literature, and the theoretical underpinnings of RtD (research through design).

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