

IN4MATX 241: Ubiquitous Computing

Class 16:
Critical Perspectives

Daniel Epstein

Ubicomp's Colonial Impulse

About the authors

- Scott Mainwaring
- PhD Cognitive Psychology, Stanford
- Ethnographer, former researcher at Intel
- Occasionally lectures at the University of Washington



Ubicomp's Colonial Impulse

Motivating work

- Colonialism
- Postcolonial computing
 - Rethinking HCI for Development research to question and account for the impacts of power, authority, participation, etc. in technology



<https://dl.acm.org/doi/abs/10.1145/1753326.1753522>

When BCIs have APIs

About the authors

- Richmond Wong & Nick Merrill
- UC Berkeley Center
for Long-Term Cybersecurity
- Research aims to surface ethical
issues in technology,
particularly around social values
like privacy & security



When BCIs have APIs

About the authors

- John Chuang
- Professor, iSchool, UC Berkeley
- Explores the potentials and challenges involved in ubiquitous biosensing technologies



When BCIs have APIs

Motivating work

- Brain Computer Interfaces (BCIs)
 - Typically use EEG signals through noninvasive means to capture brainwaves
 - Increasing commercial viability
 - Understandable concern



When BCIs have APIs

Motivating work

- Design Fiction

- Exploring promising features by creating speculative scenarios
- Intended to bring up interactions we have not been thinking about
- Science fiction can pose useful points of reflection for research
- Unlike “envisioning”, lets go of expectations about the future

https://en.wikipedia.org/wiki/Design_fiction

“Resistance is futile”: reading science fiction alongside ubiquitous computing

Paul Dourish · Genevieve Bell

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Abstract Design-oriented research is an act of collective imagining—a way in which we work together to bring about a future that lies slightly out of our grasp. In this paper, we examine the collective imagining of ubiquitous computing by bringing it into alignment with a related phenomenon, science fiction, in particular as imagined by a series of television shows that form part of the cultural backdrop for many members of the research community. A comparative reading of these fictional narratives highlights a series of themes that are also implicit in the research literature. We argue both that these themes are important considerations in the shaping of technological design and that an attention to the tropes of popular culture holds methodological value for ubiquitous computing.

ubicomp research are of a very particular sort. Rather than simply envisioning improvements in the performance of particular algorithms or computational tools, pervasive computing research argues for a wholesale reconfiguration of the relationship between people and their everyday lives, based on responsive environments and embedded computation: a form of collective imagining.

What is particularly interesting—and highly specific—about this vision is that it is one that is already familiar to us, albeit in the very different fictive frame of science fiction novels, films, and television productions. Penley [17] explores the extent to which the research and engineering activities of NASA are frequently and quite explicitly founded upon the visions of exploration and

On Being Iterated

About the authors

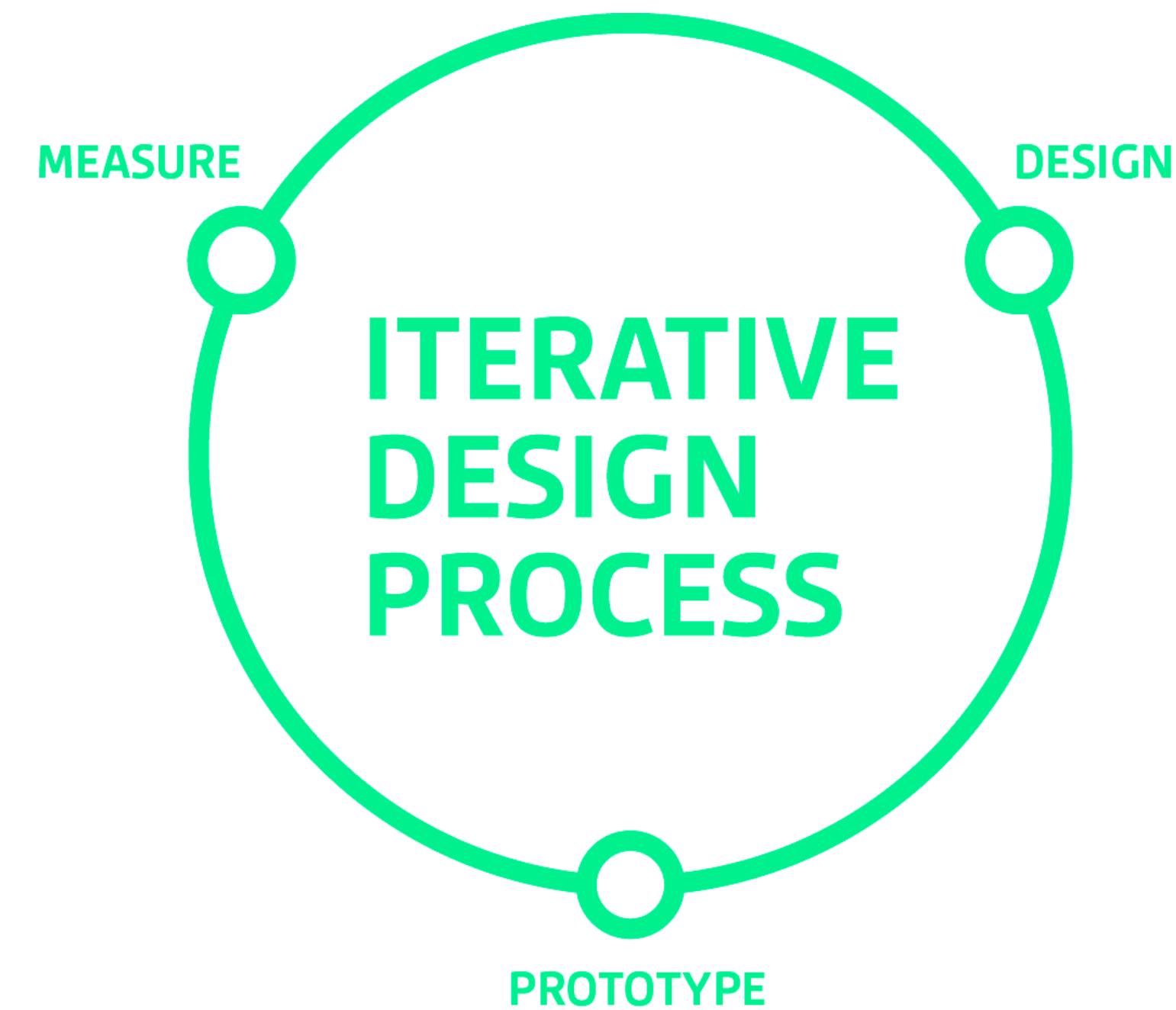
- Christopher Lawrence,
Tuk Wah Leong, Greg Wadley
- University of Technology Sydney
(Lawrence, Leong),
University of Melbourne (Wadley)
- Collaborated on a grant to support
aboriginal health through technology



On Being Iterated

Motivating work

- Iterative design processes
 - Core tenant of HCI and Ubicomp research
 - Effective, widely-used, etc.



Themes for Today

- What's the “key point” of each reading? (1 main point, ~3 subpoints)
 - Colonial: Colby, Lika, Jo
 - BCIs: Arthur, Myles, Maruf
 - Iterated: Dennis, Jason, Neeraj

Themes for Today

- As creators and studiers of Ubicomp technologies,
what should we do to avoid the traps these readings describe?

Themes for Today

- Why are few critical perspectives published in Ubicomp venues (IMWUT) nowadays?

Themes for Today

- From our discussions this quarter, what have you learned about Ubicomp technologies that you will carry to your future design and development efforts?

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