The big hole in HCI research

Vassilis Kostakos Center for Ubiquitous Computing University of Oulu, Finland

Symposium on HCI Grand Challenges, UCL, London 12 Sep 2016



Why we are here







Challenges in HCI



Challenges in HCI



HCI Grand Challenges (What) (How) Challenges in HCI



Start looking at the big picture





Interdisciplinary Overlapping Fields





http://www.scimaps.org/detailMap/index/the_fundamental_inte_145



http://www.mapofscience.com





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Trends in Federal Research by Discipline, FY 1970-2015 obligations in billions of constant FY 2015 dollars



"Other" includes research not classified (includes basic research and applied research; excludes development and R&D facilities). Life sciences are split into NIH support for biomedical research and all other agencies' support for life sciences.

Source: National Science Foundation, Federal Funds for Research and Development series. FY 2014 and 2015 data are preliminary. Constantdollar conversions based on OMB's GDP deflators. © 2015 AAAS



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We lack motor themes



We lack motor themes

Mainstream topics that are <u>central</u> and <u>well-developed</u>



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Mainstream topics that are <u>central</u> and <u>well-developed</u>

V. Kostakos. 2015. "The big hole in HCI research", Interactions, vol. 22, no. 2, pp. 48-51







Consumer Behavior [22]





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1994-2003













1994-2003



2004-2013





UNIVERSITY OF OULU









2004-2013

























• Can HCI demonstrate impact on society?



- Can HCI demonstrate impact on society?
- Can we point to some successes and take claim?



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- Can we point to some successes and take claim?
- Can we explain to kids what we do & engage with them?



- Can HCI demonstrate impact on society?
- Can we point to some successes and take claim?
- Can we explain to kids what we do & engage with them?
- Will HCI survive competition for funding?



Why are there no large HCl consortia?

Why are there no HCI community initiatives?







Identify Grand Challenges



- Identify Grand Challenges
 - Motor Themes



- Identify Grand Challenges
 - Motor Themes
 - Large consortia



- Identify Grand Challenges
 - Motor Themes
 - Large consortia
 - Large projects


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 - Motor Themes
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 - Large projects
 - Impact on society



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Change <u>how</u> we do research



- Identify Grand Challenges
 - Motor Themes
 - Large consortia
 - Large projects
 - Impact on society

Top-down

Change <u>how</u> we do research



- Identify Grand Challenges
 - Motor Themes
 - Large consortia
 - Large projects
 - Impact on society

Top-down

Change <u>how</u> we do research





A craftsman never blames his tools





Tools define trades









Theory & Protocols





Theory & Protocols



Instruments



Theory & Protocols



Instruments



Software





Theory & Protocols





Software



Datasets





HCI lacks tools





Teach & educate





Teach & educate



Communicate & collaborate





Teach & educate



Communicate & collaborate



Replication & compatibility







• What do our researchers spend time doing repeatedly?



What do our researchers spend time doing repeatedly?
Let's make it easier



- What do our researchers spend time doing repeatedly?
 - Let's make it easier
 - Systematic



- What do our researchers spend time doing repeatedly?
 - Let's make it easier
 - Systematic
 - Documented.



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- What do our researchers spend time doing repeatedly?
 - Let's make it easier
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 - Documented.
- My own research focuses on one such thing:



- What do our researchers spend time doing repeatedly?
 - Let's make it easier
 - Systematic
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- My own research focuses on one such thing:
 - Instrumenting mobile devices



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- Forget about helping designers (implications for design)



- What do our researchers spend time doing repeatedly?
 - Let's make it easier
 - Systematic
 - Documented.
- My own research focuses on one such thing:
 - Instrumenting mobile devices
- Forget about helping designers (implications for design)
 - Try to help your fellow researcher





Vassilis Kostakos 3:41 PM

General comment for all: I'm really tired of having to argue in our papers that our findings **might** lead to better designs. Perhaps if you grab a designer and convince them to make a better design, then you can make this argument. Otherwise, please avoid using this as the key argument in your discussion, and do not make this the motivating reason for doing our experiments.



Future for HCI Researchers



Tradition of controlled experiments No Yes

Strong No basic Theory yes 105




























Prototype-driven Market-ready





Prototype-driven Market-ready



Human Subjects





Prototype-driven Market-ready



Human Subjects



Speak to other disciplines











Study technology to understand humans



Study technology to understand humans

The end.

