
What Have We Learned? A SIGCHI HCI & Sustainability Workshop

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Abstract

The role and influence of HCI research in addressing the challenges of sustainability remains unclear despite ongoing interest. Sustainability-oriented paper authors, workshop participants, SIG attendees, and panelists have made ambitious predictions about the contributions of the CHI community and identified critical directions for the field. But have lessons from the past decade of HCI & Sustainability research been taken substantively into practice, within and beyond the CHI community? Have they had a significant positive influence on the vitality of the world's ecosystems? If not, how can we re-orient? This workshop is a venue for taking concrete action to integrate what we have learned about sustainability—from within and beyond HCI—into a common framework to guide the community toward more influential contributions and more rigorous evaluations of HCI & Sustainability research.

Author Keywords

Sustainability; sustainable HCI; sustainable interaction design; collapse informatics; post-sustainability; green IT; ecological design; common framework; rubric.

ACM Classification Keywords

K.4.0. Computers and society: General.

Introduction

Five years after the workshop on “defining the role of HCI in the challenges of sustainability” [15], that role

remains unclear. In 2010, Carl DiSalvo, Phoebe Sengers, and Hrönn Brynjarsdóttir identified five distinct genres in sustainable HCI, with significant unintentional redundancy; significant but unexamined differences in assumptions, methods, and outputs; and little connection to sustainability research or practice outside HCI [10]. Since 2010 the field has continued to grow conceptually, with, e.g., work on “undesigning” [17] and “collapse informatics” [21]. But, with the exception of intensifying critiques of persuasive design (e.g., [20, 6]), the conceptual inconsistencies in the field remain largely unaddressed.

Workshop Goals and Deliverables

This workshop aims to grapple seriously with the community’s unresolved differences; find concrete ways to support work that builds on existing sustainability knowledge within and beyond HCI; and find concrete ways for HCI to contribute to achieving sustainability.

To this end, workshop activities will be oriented toward the production of (1) a collective statement on the state of sustainable HCI as a field and (2) a rubric—a set of guidelines and questions—to support authors and reviewers in preparing and evaluating work that accounts coherently for past scholarship and stands to contribute substantively to achieving sustainability in practice. The collective statement will address eight questions—four theoretical and four practical:

- (1) What is sustainability?
- (2) What do we know, from within and beyond HCI, about how sustainability might be achieved?
- (3) What crucial open questions remain?

(4) How can HCI research help achieve sustainability?

(5) How should HCI & Sustainability research be evaluated (e.g., is it possible or desirable to review papers in different genres with one coherent framework)?

(6) How can the community use critiques of past work to develop new, more productive approaches?

(7) How can we make better use of sustainability knowledge from outside HCI?

(8) How can we encourage work that contributes substantively to practical efforts to achieve sustainability?

Issues to be Addressed

What is sustainability? As some HCI & Sustainability research acknowledges, working toward sustainability goals in practice is complex and often contentious. Sustainability, if conceived as a “problem” (although see [2]) is a classic “wicked problem” (e.g., [1, 14]), with many possible framings and no decisive solution test. Yet the sustainability literature does suggest a rough international consensus on what sustainability goals are and on the nature and origin of impediments to achieving them. Synthesizing a vast, interdisciplinary body of research and policy documents, the contributors to the 1999 National Research Council Report *Our Common Journey: A Transition Toward Sustainability* wrote:

...the primary goals of a transition toward sustainability over the next two generations should be to meet the needs of a much larger but stabilizing [global] human

population, to sustain the life support systems of the planet, and to substantially reduce hunger and poverty. Using goals outlined in international conventions, we define meeting human needs as providing food and nutrition, nurturing children, finding shelter, providing an education, and finding employment. We define preserving life support systems as ensuring the quality and supply of fresh water, controlling emissions into the atmosphere, protecting the oceans, and maintaining species and ecosystems. We define reducing hunger and poverty as ensuring income growth, employment opportunities, and essential safety net services [16, p. 31].

HCI & Sustainability research to date has aligned loosely with these goals, but has not used them systematically to orient or evaluate design. Rather it has tended to begin from the less specific Brundtland definition of sustainable development—development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” [5]. As Baumer and Silberman noted in 2011 [2], avoiding the potentially contentious issue of what counts as a “need” raises practical problems for design—but addressing it arbitrarily may raise ethical or even political problems.

Participants are asked to engage these difficult issues head-on—and develop an operational definition of “sustainability” relevant to orienting and evaluating information system design.

What do we know, from within and beyond HCI, about how sustainability might be achieved? What crucial open questions remain? How can HCI help? Between 2007 and 2013, the vanguard of

sustainable HCI shifted from a focus on designs for individual behavioral change toward broader consideration of the social and material practices of groups—from households to nations; cf. e.g. the genres of persuasive technology and ambient awareness, as discussed in [10], with, from 2009–2013, [1, 9, 12–14, 18, 19]. Recent work has suggested that individuals, especially conceived as consumers or users, do not have full control over their resource usage. Rather, they are bound by social norms, economics, and existing infrastructure [e.g., 7, 8]. Sustainability research outside HCI focuses more on policies, institutions, and infrastructure than individual behavior change—but policies, institutions, and infrastructures are changed, ultimately, by individuals.

Another persistent question—appearing at least as early as Blevis’ foundational 2007 paper on sustainable interaction design [3]—in HCI & Sustainability research is the role of technology in achieving sustainability. Drawing on third wave HCI [11, 4], recent work [e.g., 6] argues convincingly that while technology will play a role, it must be considered in its *particular* social contexts. If true, this requirement poses significant theoretical and methodological challenges.

Participants are asked to integrate past work within and outside HCI to theorize how sustainability might be achieved; what respective roles policies, institutions, infrastructures, individuals, and technologies might have in this process; and how HCI researchers can support actors working toward sustainability in a broad range of institutional contexts.

How should HCI & Sustainability research be evaluated? Participants are asked to turn these

conceptual, past-oriented discussions to practical, future-oriented ends—to collectively craft a statement on what counts as good HCI & Sustainability research. How should reviewers treat submissions that reproduce issues identified in past critiques without addressing them, or that reproduce—or fail to integrate—knowledge already well-known in sustainability research outside HCI? Put another way, to what standards should new work be held?

How can we encourage work that contributes substantively to practical efforts to achieve sustainability?

Finally, participants are asked to consider the “real-world” impact of HCI & Sustainability research. What examples do we have of meaningfully impactful work? How can we support more? Are new theoretical and methodological resources needed, or are existing approaches adequate? What institutional and professional barriers stop researchers from producing such work, and how can they be overcome?

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