

Workshop Proposal Cover Sheet

Workshop Title

What Have We Learned? A SIGCHI HCI & Sustainability Community Workshop

Contact

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What Have We Learned? A SIGCHI HCI & Sustainability Workshop: Proposal

Without a common framework to organize findings, isolated knowledge does not cumulate.

—Elinor Ostrom [17]

Topic

Supporting HCI & Sustainability research that (1) builds on existing knowledge about sustainability and information systems within and beyond HCI and (2) contributes practically to achieving sustainability.

Rationale, Aims, and Approach

Five years after the workshop on “defining the role of HCI in the challenges of sustainability” [11], that role remains unclear. In 2010, Carl DiSalvo, Phoebe Sengers, and Hrönn Brynjarsdóttir identified five distinct genres in sustainable HCI. Across the genres they found unexamined differences in assumptions, methods, and outputs, and little connection to sustainability research or practice outside HCI [8]. Since 2010 the field has continued to grow conceptually, with, e.g., work on “undesigning” [18] and “collapse informatics” [19, 21–22]. But the unexamined differences and missed connections—within sustainable HCI and to sustainability work outside HCI—remain, though often noted, largely unaddressed in new work.

In this workshop we aim to: (1) grapple seriously with the community’s unexamined differences; (2) find ways to support work that builds on existing knowledge within and beyond HCI; and (3) find ways to contribute

practically to achieving sustainability. Four simple but underexamined questions will orient this effort: (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?

Considering these *theoretical* questions will position participants to collectively consider four *practical* questions: (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?

The collective production of two written deliverables will orient and structure pre-, in-, and post-workshop activity: (1) a statement answering the eight questions above, and (2) a rubric—a set of guidelines and questions—for supporting and evaluating HCI & Sustainability research. Together, the statement and rubric will constitute the first version of an evolving community resource with several purposes. It will help reviewers for CHI and related venues evaluate submitted work; help researchers new to the area understand how individual works contribute to the whole; and suggest areas for further inquiry.

Producing this resource will require integrating diverse, evolving perspectives on what constitutes quality sustainable HCI research into a coherent set of themes, propositions, guidelines, and questions. Thus we aim to develop both the first version of this resource and a framework for collectively maintaining and updating it. The SIGCHI HCI & Sustainability community [20] will provide an online venue for this maintenance work.

Organizers

All the organizers are active contributors to HCI & Sustainability research. Together, they have organized many sustainability SIGs, panels, and workshops at CHI and other ACM conferences [3–7, 9, 11–13, 16, 19], served as chairs of the CHI sustainability community, and written foundational and award-winning papers in the field [1–2, 10, 21]. Additionally:

M. Six Silberman is a Ph.D. student in the Department of Informatics at the University of California, Irvine.

Eli Blevis is Associate Professor in the School of Informatics at Indiana University, Bloomington.

Elaine Huang is Associate Professor of Human-Computer Interaction at the University of Zurich.

Bonnie A. Nardi is Professor of Informatics at University of California, Irvine. She taught the world's first course on "collapse computing" in 2012.

Lisa P. Nathan is Assistant Professor in the University of British Columbia iSchool. She has led or organized all but one of the CHI sustainability workshops.

Daniela Busse is a director-level UX Strategist at the UX Innovations Lab, Samsung Research America.

Chris Preist is Reader in Sustainability and Computer Systems at the University of Bristol.

Samuel Mann is Associate Professor at Otago Polytechnic University. He has written two books on sustainability [14, 15].

Workshop Plan

Before We will recruit both established and new HCI & Sustainability researchers. Organizers will directly notify colleagues and students who may be interested, and the workshop Call for Participation will be posted to relevant mailing lists (e.g., chi-announce, sustainable-chi, department lists) and social network pages.

Established HCI & Sustainability researchers seeking to participate will be asked to submit position papers answering any subset of the eight questions above. Researchers new to the area will be asked to summarize their (1) interest in the area, (2) background and approaches, (3) questions about the area that could be usefully answered by the community resource, and, optionally, (4) answers to any subset of the eight questions. All submissions will be evaluated by the organizers for clarity and potential contribution to the discussion. Papers from established researchers will also be evaluated for comprehensiveness and rigor. We expect to include about 20 participants.

A summary of accepted papers will be prepared by the organizers, distributed at least two weeks prior to the workshop, and discussed in the opening talk.

During The workshop will proceed in five parts. (1) Organizers present workshop goals and agenda and summarize position papers. (2) Participants introduce themselves and summarize their positions. (3) Participants form affinity groups; each group prepares a collective statement on the eight questions and a rubric. (4) Groups present their statements and rubrics for discussion; organizers guide the whole group in integrating the content into one document. (5) Participants commit to post-workshop activities.

9:00–9:15 Welcome; goals and agenda.
 9:15–9:30 Organizers summarize position papers.
 9:30–10:30 Introductions, 3 minutes per person.
 10:30–11:00 Break; participants form affinity groups.
 11:00–13:00 Affinity groups prepare collective statements and rubrics.
 13:00–14:00 Lunch.
 14:00–15:00 Affinity groups present; discussion.
 15:00–16:45 Whole group integrates content.
 16:45–17:00 Commit to post-workshop activities.

After Organizers will (1) create a poster based on the whole-group statement and rubric for the “spotlight on workshops” session; (2) post the statement and rubric to the SIGCHI HCI & Sustainability page for debate, development, and use by authors and reviewers; (3) lead production of a feature article for *Interactions* on the workshop process and outcomes; and (4) encourage participants to join these activities.

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What Have We Learned? A SIGCHI HCI & Sustainability Workshop: Abstract

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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. [3], focused on consumer devices, with, from 2009–2013, [1, 9, 10, 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 oft-discussed but largely unaddressed question in HCI & Sustainability research pertains to 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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Workshop Call for Participation

Workshop Title

What Have We Learned? A SIGCHI HCI & Sustainability Community Workshop

This one-day workshop will gather new and established HCI & Sustainability researchers to assess what we have learned, address conceptual inconsistencies in the field, and develop a coherent framework for orienting and evaluating future work. Eight questions will orient discussion:

- (1) What is sustainability?
- (2) What do we know about how sustainability might be achieved?
- (3) What crucial questions remain?
- (4) How can HCI help achieve sustainability?
- (5) How should HCI & Sustainability research be evaluated?
- (6) How can we use critiques of past work to develop more productive approaches?
- (7) How can we better integrate knowledge from outside HCI?
- (8) How can we encourage work that contributes to practical sustainability efforts?

We will produce a collective statement answering these questions and a set of guidelines and questions for orienting and evaluating new work. These will constitute the first version of an evolving community resource.

Participants are asked to identify as “established” researchers or as new to the area. Established researchers should submit a position paper addressing any of the eight questions. New researchers should submit a statement describing their interest in the area; background; questions for the community; and, optionally, answers to any of the eight questions. Submissions will be evaluated for clarity and contribution potential.

Submissions should be:

- + in SIGCHI Archive Format
- + 2–4 pages long
- + emailed to Six Silberman <silberman.six@gmail.com> by 17 Jan 2014

Acceptance notifications will be mailed by 10 Feb 2014.

At least one author of each accepted submission must attend the workshop. All participants must register for the workshop and for at least one day of the conference.