Critical Computing, Sustainability, and Social Justice

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Venues

- CHI Subcommittee
- New Media & Society
- NordiCHI (Critiques)

CHI Subcommittee

Themes

- Social justice
- Global sustainability
- Critical-reflective research practice
- Critical computing
- Artful and aesthetic experiences

CHI Subcommittee

Social Justice Topics

- Diversity/inclusion, sustainability, survivance, and social justice
- Marginalized and unheard persons, populations, Nations
- Structural processes of power and control that produce and reproduce racialized, gendered, sexist, ableist, and colonial/postcolonial forms of violence, vulnerabilities, and exclusions
- Indigenous knowledges, and Majority Worlds perspectives

CHI Subcommittee

Critical-reflective Research Practice Topics

- A robust and open politics
- The prominent use of philosophy and other theory
- Challenges to and/or new analyses of received knowledge and paradigms

CHI Subcommittee

Global Sustainability Topics

- Low-energy or zero carbon technologies and ways of life
- Environmental justice, intergenerational justice, more than human worlds, technology and its implications in the climate crisis

Artful and aesthetic experiences Topics

- The pursuit of artful experiences and aesthetic ways of being and doing
- The fostering of empathy, imagination, appreciation, and perception as community value

CHI Subcommittee - History

- Started in 2020
- Named “Critical and Sustainable Computing”

Papers on these topics doubled over the past 10 years alone: sustainability, social justice, development, cultural computing, Indigeneity, feminist HCI, emancipation, race, intersectionality, and the relationship of HCI to politics, activism, ethics, and the legal and societal impacts of computing

- Roots go back to the 1970s
- Eg. Aarhus Decennial Conference

CHI Subcommittee - History

2021

"Critical and Sustainable Computing"

Doesn't explicitly mention:

- Indigenous people
- Intergenerational justice
- Environmental justice
- Power structures that reproduce racialized, gendered, sexist, ableist, and colonial/postcolonial

2022 and 2023

"Critical Computing, Sustainability, and Social Justice"

Identical Call for Papers

CHI Subcommittee

What disciplines do contributions draw from?

- Philosophy
- Science and Technology Studies (STS)
- Design studies
- Media studies
- Cultural studies
- Gender and Sexuality studies
- Critical theories in domain fields
- HCI4D,
- Development technologies,
- Technology and the global south
- Technologies focused around "social good."

Discussion

Have themes and topics from Critical Computing, Sustainability, and Social Justice come up in your research? If so, how?

New Media

Themes

- Cultural and the political dimensions of new media
- Global and local dimensions of the relationship between media and social change
- Contemporary as well as historical developments
- Implications and impacts of, as well as the determinants and obstacles to, media change the relationship between theory, policy and practice

Both theoretical and empirical work

New Media

What disciplines do contributions draw from?

- Social sciences and the humanities
- Communication
- Media and cultural studies
- Sociology
- Geography
- Anthropology
- Economics
- Political and information sciences

Critiques

- Submission category at NordiCHI
- Theme: Participative computing for sustainable futures,
- Types of contribution
- Critical Writing: argument, theoretical, speculative, visionary. Not evidence based
- Critical Artifacts: interactive device, a piece of digital or analog artwork, a website, or electronic new media
- Draw from fields: HCI, STS, software studies, digital aesthetics, critical design, computer science, and fabrication.

Venues: Similarities and Differences

Similarities

- All of them have themes of technology intersecting with culture and politics
- Across local or global scales
- Types of contributions: Theory, opinion, empirical

Differences

- CHI Subcommittee and Critiques both seem broad than New Media and Society
- CHI Subcommittee has the most specific guidelines.
- CHI Subcommittee has a focus on justice (social justice, intergenerational justice, climate justice)
- Critiques focuses on sustainability and participation
- New Media and Society seems more about analysis than goal oriented (i.e. justice, sustainability etc.)

Discussion

If you write papers on these topics, which venues do you submit to? One of the 3 discussed today or other venues?

What are the core research questions or topics examined by researchers in this subcommittee?

Framing papers:

- Bardzell, S. (2010). Feminist HCI: Taking stock and outlining an agenda for design. *CHI*.
- Harrington, C., Erete, S., & Piper, A. M. (2019). Deconstructing Community-Based Collaborative Design: Towards More Equitable Participatory Design Engagements. Proceedings of the ACM on Human-Computer Interaction, *CSCW*.
- Pal, J. (2017). CHI4Good or Good4CHI. *CHI*.

Overview: Feminist HCI

Feminist HCI: Taking stock and outlining an agenda for design

Author: Shaowen Bardzell

Published in 2010 in CHI

Research objective: "summarize the state of the art of feminism in HCI and propose ways to .. more robustly integrate feminism into interaction design research and practice"

Feminism: a domain of critical theory that examines "the ways in which literature (and other cultural productions) reinforces or undermines the economic, political, social, and psychological oppression of women."

Structure of the paper:

1. Reintroducing Feminism
2. Application of feminism in cognate fields
3. Feminism in HCI: The State of the Art
4. Opportunities to draw on Feminism in HCI

Where it pulls literature from:

Design theories; Media studies, Philosophy, STS, Critical venues of technology design

Discussion

Have you seen feminism/feminist theories applied to scholarly works in the research area of your interest?

How did the researchers use feminism to inform their studies? (3 min)

Reintroducing Feminism

The third wave feminism (1990s~):

Gender is not a given fact but constructed through media, institutions, scientific discourses, etc.

Feminist Epistemology:

Differential access to resources and opportunities lay differing experiences and viewpoints. *Yet not every knowledge is treated equally.*

→ Feminist standpoint: Challenge the unexamined assumptions of dominant worldviews and privilege alternative epistemologies

Application of feminism in cognate fields

Science and technology studies (STS)

"The underrepresentation of women" + "The universalizing aspirations" result in reinforcing inequities

Product & Industrial Design

Patriarchal design projects render women as gendered objects

Architecture & Urban planning

Urban space and building design is insensitive to women's need and desire

Game Design

Games embodying "male gaze" objectifying women's body

Feminism in HCI: The State of the Art

Feminism enters HCI as

1) Part of input fields to HCI (e.g., STS, psychology, etc);

2) HCI attends to concerns that have been associated with feminism (e.g. domestic technology)

Examples)

How gender difference shapes experiences in contexts (Green et al., 1993)

Deficit understanding of women undermines interaction design (Cassell, 2002)

Challenging the patriarchal concept of family in domestic technology design (Bell & Dourish, 2006)

→ And yet, the HCI community has not actively forged its own way to benefit from feminism.

Opportunities to draw on Feminism in HCI

→ A guide to draw on Feminism in HCI grounded in *HCI's goals and challenges*

The Third wave in HCI

Computation getting ubiquitous, pervasive in our everyday lives

a stronger emphasis on human values, meaning-making, situated knowledge, and experiences

Updating 'usability' to meet the challenges in the third wave of HCI

- Universality of design should be challenged
- Technology is shaped by and shape gendered subjectivity and experiences
- Ethical dilemma:
  - "How do we simultaneously serve real-world computing needs and avoid perpetuating the marginalization of women and indeed any group in technology?"
- Emerging areas of applications

Opportunities to draw on Feminism in HCI

The Qualities of Feminism in HCI

Pluralism

Resist any single, totalizing, or universal point of view because:

"Human is too rich, too diverse, and too complex a category to bear a universal solution."

Participation

"Knowers are not substitutable for one another."

Participatory design complements designers' user studies

Advocacy

Engage with the ethical dilemma seriously

"Seek to bring about political emancipation & Question their own position to assert what an "improved society"

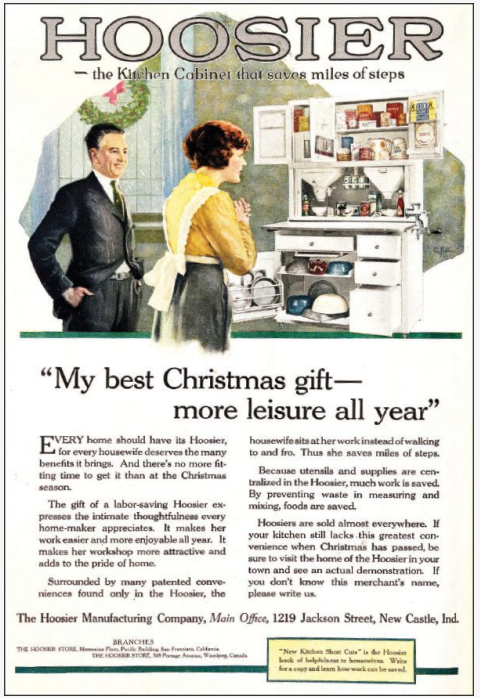
Opportunities to draw on Feminism in HCI

The Qualities of Feminism in HCI

Ecology — Expand one's attention to the broader contexts and the wider array of stakeholders a design artifact lives with

Embodiment — Don't ignore the bodily nature of human experiences: emotions, physical interactions, etc.

Self-disclosure — Disclose the assumptions about users, thereby people can fix them or at least keep an adequate distance



Opportunities to draw on Feminism in HCI

Contribution types

Critique-based Analyzing designs and design processes in order to expose their unintended consequences.

Generative Decision-making and Design process to generate new design insights and influence the design process tangibly

Discussion

Do you see the prospects this paper suggested realized in the current HCI research and practices?

Overview: Deconstructing Community-Based Collaborative Design

Written: Christina N Harrington, Sheena Erete, and Anne Marie Piper

Published by: CSCW

Date: November 2019

Summary: A critical exploration of participatory design in the context of HCI. The authors use two case study to highlights “key areas of tension and consideration” when approaching participatory design.

Where it pulls literature from: design theories, media studies, philosophy, STS, critical venues of technology design

Overview: Deconstructing Community-Based Collaborative Design

What is participatory design?

- A set of methods where researchers actively involve stakeholder into design development and evaluation.
- Seeks “...democratize the design process”
- Design workshops commonly used to engage community members

Overview: Deconstructing Community-Based Collaborative Design

This paper makes three contribution:

- Provides insights into how historical context impacts participatory design
- Suggest a post-colonial analysis for design
- A set of recommendations for developing effective and safe collaborative engagement

Overview: Deconstructing Community-Based Collaborative Design

Tensions often overlooked by designers and researchers:

- Histories of research injustice in underserved communities
- Misconceptions around “gatekeeping”
- Lack of cultural humility in engagement development
- Risks for participants

Case Study 1: Envisioning Health Among Low-Income African-American Older Adults

NSF-funded workshops were developed to better understand how 1) to develop tools to support better health outcomes and 2) use workshops to elicit community-based discussion among older, African-American adults.

Participants were restricted to older adults from predominantly Black communities in Chicago.

Results were shared with participants after the completion of the 5 week series.

Case Study 2: Civic technology

- Workshops to understand barriers for low-income Latinx and African Americans to explore civic engagement
- Work funded by local nonprofit with collaboration for local government
    - Ultimate goal to develop smart city tech

What was learned

- Participants reflected on their past relationship with similar research work. One participant stated
- "...being used in research studies despite not having access medical treatment as a patient of the hospital itself."
- Historical and political context
- Many were old enough to have been alive during the Tuskegee Experiments, impacting their views of research and medical systems overall.
- Access to different communities can be difficult
- Even with best intentions, materials may not be appropriate
- Participants in both struggled with engaging with materials used in workshops

Pair and share

How can these finding impact your research?

Community-based collaborative design: Discussion

- How do we define power from a structural perspective?
  - How does this apply to our role as researchers?
  - Are there specific considerations we need to keep in mind in the realm of HCI and technology?
- What are some qualities of authentic participatory design?
  - What are benefits and challenges of this method?
  - How have you used this method in your own work ?
- Have any of you all been a participant in a study?
  - Why or why not?
  - What was this experience like?
  - Did you you feel heard?

Overview: CHI4GOOD or GOOD4CHI

Background

- By Joyojeet Pal, Published at CHI 2017
- Published in Alt.CHI track
  - Established in 2005
  - Experimental, provocative, introspective track
- Meta commentary about research in technologies for social good in context of HCI and CHI
  - Critique around CHI '16 theme "CHI4GOOD"
  - Also critique of CHI 17' Student Design Competition
    - "Leveling the Playing Field"
  - Relationship between "good" and CHI

Overview: CHI4GOOD or GOOD4CHI

"A brief history of the underserved at CHI"

- 1990 "Declaration of Responsibility"
  - Call for HCI to be more mindful of the elderly and illiterate
- 1997 Muller et. al
  - Greater emphasis on social responsibility, citing accessibility
- The Digital Divide; initial discourse in the late 90s
  - Higher considerations to low-SES populations
  - Following decade- more focus on houseless people, ethnic/racial minorities
- Significant growth in HCI4D (Human-computer interaction for development)
  - The Global South

Social good in HCI4D and ASSETS

- ASSETS primarily driven by interaction design and challenges in non-standard interfaces
- HCI4D focused more on populations themselves and sociotechnical concerns

How We Frame “Good”

CHI4GOOD

- “The notion of a ‘CHI4GOOD’ world is next within an ecosystem of institutions and epistemologies that see technology as a necessary if not primary means of social benefit”…”technology can solve wicked social problems”

Leveling the Playing Field

- Design competition on technologies for social good with a target audience
  - “But the aged, the economically disadvantaged, those with a physical or cognitive anomaly, or those who are marginalized in some other way seem like good places to begin your explorations.”
- Constructs the user as needing the “good,” and the designer as a provider

Typologies in Design for Doing Good

Crossover Work

- Interest around specific underserved populations with work that extends beyond said population; Implications in accessessibilty research
- Usually focused on interfaces

Application Research

- Optimizing efficiency in technologies and systems where the beneficiaries are underserved populations
- Tech that helps gather or disseminate information in service areas (healthcare)
- Efficiency measured in metrics of time, data, cost, etc.

Community-Centric Research

- Analysis of a sociotechnical setting
- Qualitative accounts of communities experience and use of technologies
- Often design artifacts are present

Discussion

If at all, how have you framed your research approaches to align with a “social good”?

Do they fall into on of the three categories we’ve discussed?

What is GOOD4CHI

Crossover Work

- Advantage in novelty of the interface as central focus; widespread acceptance that it's CHI-worthy

Application Research

- Business case-driven, operations that require efficient, usable interfaces

Community-Centric Research

- Focus on design implications
- CHI not fully equipped to evaluate this type of research
  - Generally not domain experts
  - Other categories don't need "social good" justifications to be in the CHI community

Discussion

Taking into consideration the advantages and disadvantages we've discussed, think of the following:

Many studies take critical approaches, but are they all accepted to this subcommittee?

Takeaways on CHI and “Good”

- Paper calls for a reflection of what exactly we want in “social good” technologies
- Academics, generally, are in a higher places of privilege
- Challenges framing of whether design can bring social good and instead asks how designers can reflect on why it matters that it can
- Deep involvement required for research with underserved communities

“We are responsible for ensuring that the gravity of social good is adequately reflected in the ways we approach the subject”

Discussion Papers

- Whitney et al. HCI Tactics for Politics from Below: Meeting the Challenges of Smart Cities. CHI '21.
- Holten Møller et al. Shifting Concepts of Value: Designing Algorithmic Decision-Support Systems for Public Services. NordiCHI '20

Common themes

- Challenged the norms of what HCI designers and researchers do
- Practiced the alternative ways of doing HCI work on the ground
- Method: participatory design (& “reflection”)
- What types of contributions are these works making?

Discussion 1: Tactics for Politics from Below

HCI Tactics for Politics from Below: Meeting the Challenge of Smart Cities

Author: Cedric Desland Whitney, Terasa Naval, Elizabeth Quepons, Simrandeep Singh, Steven R. Rick, and Lilly Irani

Published in **CHI in 2021**

Topic: Community organization input in development

RQ: How can HCI be used to strengthen grassroots collaboration?

Method: Speculative design, ethnographic research, Alinskyan organizing (by Saul Alinsky)

Background

Summary

- The paper offers a reflection of the research team's work in San Diego working with community and government stakeholders in the Smart Light Project
- The research team worked in coalition with community stakeholders and government official for the roll out Smart Lights, street light equipped with cameras and microphones.

→ ***What are some possible problems related to this technology?***

Motivation & Contribution

- HCI knowledge and techniques can be used to build relationships necessary for effective organizing efforts.
- In the San Diego case, the authors offered three ways HCI practices and knowledge was used for coalition building

Document reading/providing HCI expertise

“Slightly dystopian” hackathon using speculative design and storytelling

Public reporting

Related Literature & Concepts

- Usability as a “trap”
- Participatory design
- Speculative design

Points of reflection for future work

- Governance objectives can sometimes come in conflict with community desires in the form of surveillance and datafication
- The HCI can work with community members as authentic partners by offering their expertise but not dictating outcomes
- Without community input, projects can develop that are harmful up citizens and ultimately political harmful

Discussion

- To what extent are researcher beholden to community stakeholders?
- HCI values novelty. How do we shift our research to center communities?
- What are other ways that HCI can be used in grassroots organizing?
- How and when can increasing data collection be beneficial to communities? Harmful?

Discussion 2: Shifting Concepts of Value

Shifting Concepts of Value: Designing Algorithmic Decision-Support Systems for Public Services

Author: Naja Holten Møller, Irina Shklovski, and Thomas T. Hildebrandt

Published in **NordiCHI in 2020**

Topic: HCI in public service design, responsible system design

RQ: How do data scientists, caseworkers, system developers negotiate notions of value metrics and usefulness in a participatory design set-up?

Method: Participatory design, ethnographic observation/reflection

Background

Designing an algorithmic element for job placement in municipal job centers in Denmark

Caseworkers:

Documenting job placement cases

Categorizing individuals and deciding their eligibility for job placements

Target groups based on the benefits and requirements

Related works

How to design responsible algorithmic decision systems in public sector?

Complexity of public services and its value metrics:

HCI in public service design

- Establishing value metrics in public services is not straightforward.
- Human discretion make bureaucratic rules applicable to individual cases.

Political theory

The power of algorithms (& its designers) over value metrics

- Algorithms are not apt for the complexities and discretion
- Still algorithms (and their designers) tend to have more power over practitioners and their social implications.
- Domain expert engagement has been considered as “box-checking” exercise

Critical data studies
STS
Political science

HCI, Participatory Design

Motivation & Contribution

- The concept of value metrics, so important in the design of algorithmic systems, is not monolithic and tends to be oversimplified.
- We cannot and should not reduce the concept of value metrics to performance measurements alone.
- Then we should ask:
  - How the value metrics are actually negotiated in algorithmic system design process?
  - How do HCI researchers can inform the processes driven by data scientists and engineers and highlight the concerns for practitioners?

→ Answering these question through participatory design

Findings

- Algorithms can be used by authorities for decision-support in public services
- Different stakeholders with different perspectives and goals
- Identifying common value metrics is difficult
- Oversimplification of values metrics can lead to discrimination in algorithmic decision making

Findings

Municipality:

- Increase job placement
- Reduce unemployment

Data scientists:

- Identified “at risk” individuals
- Classified them into “red”, “yellow”, and “green” categories
- Predicting how long individuals will remain unemployed

Findings

Caseworkers:

- Did not think identifying “at risk” individuals was useful
  - In fact, found it counter-productive to “profile” people
- At odds with their fundamental philosophy of having “faith” in individuals
- Individuals are not their history, like they are in training datasets for models
- Length of unemployment can be the fault of case workers and organizations
- Questioned the legitimacy of having algorithmic decision making in this context at all

Findings

Caseworkers-Data Scientists:

- Caseworkers suggested alternatives
- Use number of 13-week internships an individual completed as a variable
- Shift predictive work from individual to organizational:
    - Predict “lay time”
- Data scientists were open minded

Data Scientist-Developer:

- Major shifts in data and model
- Maybe not feasible

Discussion

- In your own research, have you faced tensions in goals and values between different stakeholders? What were they?
- Was is it possible to resolve the differences? If so, how? If not, why?

Reflection

Q1. What is one structural constraint that you would like to free your research from?

Reflection

Q2. Let's think about our own position of power in situations we engage in as researchers. How could we challenge it?

Thank You!