

UMSI research from 2020 CSCW proceedings

University of Michigan School of Information (UMSI) faculty and PhD students are presenting nearly two dozen papers, posters and workshops at the 2020 ACM Conference on Computer-Supported Cooperative Work (CSCW) October 17-21.

CSCW is the leading conference for presenting research in the design and use of technologies that affect groups, organizations, and communities. The conference brings together top researchers and practitioners from academia and industry who are interested in both the technical and social aspects of collaboration.

This year's conference was to take place in Minneapolis, Minnesota, but organizers moved the conference online due to the COVID-19 pandemic.

See below for a complete list of UMSI research. School of Information faculty, students and researchers are listed in bold, and the names of other University of Michigan scholars are italicized. Times listed are in Eastern Daylight Time.

Papers

["Learning from Family Mysteries: Accounting for Untold Stories in Family Memory Practices"](#)

Jasmine Jones, Mark S. Ackerman

Tues., Oct. 20, 8-9:30 a.m.

Given the importance and social significance of passing down family stories to each generation, why do important family stories not get told? How should designers of digital family storytelling platforms address missing or incomplete parts of narratives? Drawing from the results of an interview-based, practice-oriented inquiry, we argue that non-telling should be considered an important and integral part of family storytelling. Our findings show that non-telling is not simply silence. Non-telling allows family members to observe protective and discretionary values essential to the identity-making and relational goals of family storytelling. We also show ways that a person's reticence is situated and may change over time. In our discussion, we provide design strategies for family storytelling technologies to make room for silence and incorporate the values, purposes, and practices of non-telling.

[TOCHI - Disclosure, Privacy, and Stigma on Social Media: Examining Non-Disclosure of Distressing Experiences](#)

Nazanin Andalibi

Mon., Oct. 19, 10-11:30 a.m.

Disclosures of distress and stigma on identified social media can be beneficial. Yet, many who may benefit from such disclosures do not engage in them. I examine factors that inform decisions to not disclose stigmatized experiences on identified social media. I conducted in-depth interviews with women in the U.S. who used social media, had experienced pregnancy loss, and had not disclosed about their loss on identified social media. I detail six types of

factors related to the self, audience, network, society, platform, and temporality that contribute to non-disclosure decisions. I show that the Disclosure Decision-Making (DDM) framework introduced in prior work explaining disclosures when they do occur, also explains non-disclosure decisions on social media. I show how DDM builds from and bridges prior privacy theories, namely Communication Privacy management and Contextual Integrity. I discuss design implications around removing barriers to disclosure to facilitate beneficial disclosures and reduce stigma.

[Exposing Error in Poverty Management Technology: A Method for Auditing Government Benefits Screening Tools](#)

Nel Escher, Nikola Banovic

Mon., Oct 19, 10-11:30

Public benefits programs help people afford necessities like food, housing, and healthcare. In the US, applicants must complete long forms to prove financial distress before receiving aid. Online benefits screening tools provide a gloss of such forms, advising households about their eligibility prior to completing full applications. If incorrectly implemented, they may discourage qualified households from applying for benefits. Unfortunately, errors are difficult to detect because they surface one at a time and difficult to contest because unofficial determinations do not generate a paper trail. We introduce a method for auditing such tools. We generate test households that automatically populate screening questions. To detect errors, we compare the returned determinations to predictions from our formal eligibility guidelines model. Illustrated on a real screening tool with households modeled from census data, our method exposes major errors with corresponding examples to reproduce them. Our work provides a necessary corrective to an already arduous benefits application process.

[TOCHI - Privacy Norms and Preferences for Photos Posted Online](#)

Roberto Hoyle, Apu Kapadia, David Crandall, Luke Stark, **Denise Anthony**

Mon., Oct. 19, 10-11:30 a.m.

We are surrounded by digital images of personal lives posted online. Changes in information and communication technologies (ICTs) have enabled widespread sharing of personal photos, increasing access to aspects of private life previously less observable. Most studies of privacy online explore differences in individual privacy preferences. Here we examine privacy perceptions of online photos considering both social norms, collectively-shared expectations of privacy, and individual preferences. We conducted an online factorial vignette study on Amazon Mechanical Turk (n=279). Our findings show that people share common expectations about the privacy of online images, and these privacy norms are socially contingent and multi-dimensional. Use of digital technologies to share personal photos is influenced by social context as well as individual preferences, while such sharing can affect the social meaning of privacy.

[Trans Time: Safety, Privacy, and Content Warnings on a Transgender-Specific Social Media Site](#)

Oliver Haimson, Justin Buss, Zu Weinger, Denny Starks, Dykee Gorrell, Briar Sweetbriar

Baron

Mon., Oct. 19, noon - 1:30 p.m.

Trans people often use social media to connect with others, find and share resources, and post transition-related content. However, because most social media platforms are not built with trans people in mind and because online networks include people who may not accept one's trans identity, sharing trans content can be difficult. We studied Trans Time, a social media site developed particularly for trans people to document transition and build community. We interviewed early Trans Time users (N = 6) and conducted focus groups with potential users (N = 21) to understand how a trans-specific site uniquely supports its users. We found that Trans Time has the potential to be a safe space, encourages privacy, and effectively enables its users to selectively view content using content warnings. Together, these aspects create an online space where trans people can simultaneously build community, find support, and express both the mundanity and excitement of trans life. Yet in each of these areas, we also learned ways that the site can improve. We provide implications for how social media sites may better support both trans users, as well as insular communities of people from other marginalized groups.

[Towards Supporting Programming Education at Scale via Live Streaming](#)

Yan Chen, *Walter Lasecki*, Tao Dong

Tue., Oct. 20, 10-11:30 a.m.

Live streaming, which allows streamers to broadcast their work to live viewers, is an emerging practice for teaching and learning computer programming. Participation in live streaming is growing rapidly, despite several apparent challenges, such as a general lack of training in pedagogy among streamers and scarce signals about a stream's characteristics (e.g., difficulty, style, and usefulness) to help viewers decide what to watch. To understand why people choose to participate in live streaming for teaching or learning programming, and how they cope with both apparent and non-obvious challenges, we interviewed 14 streamers and 12 viewers about their experience with live streaming programming. Among other results, we found that the casual and impromptu nature of live streaming makes it easier to prepare than pre-recorded videos, and viewers have the opportunity to shape the content and learning experience via real-time communication with both the streamer and each other. Nonetheless, we identified several challenges that limit the potential of live streaming as a learning medium. For example, streamers voiced privacy and harassment concerns, and existing streaming platforms do not adequately support viewer-streamer interactions, adaptive learning, and discovery and selection of streaming content. Based on these findings, we suggest specialized tools to facilitate knowledge sharing among people teaching and learning computer programming online, and we offer design modifications that promote a healthy, safe, and engaging learning environment.

[C-Reference: Improving 2D to 3D Object Pose Estimation Accuracy via Crowdsourced Joint Object Estimation](#)

Jean Song, *David Fouhey*, *John Joon Young Chung*, *Walter Lasecki*

Mon., Oct. 19, 10-11:30 a.m.

Converting widely-available 2D images and videos, captured using RGB camera, to 3D can help accelerate the training of machine learning systems in spatial reasoning domains ranging from in-home assistive robots to augmented reality and autonomous vehicles. However, automating this task is challenging because it requires not only estimating object location and orientation, but also unknown camera properties (e.g., focal length). One way to combat this problem in a scalable way is to leverage people's spatial understanding of scenes by crowdsourcing visual annotations of 3D object properties. Unfortunately, getting people to directly estimate 3D properties reliably is difficult due to the limitations of image resolution, human motor accuracy, and people's 3D perception (i.e., humans do not "see" depth like a laser range finder). In this paper, we propose a crowd-machine hybrid approach that jointly uses crowds' approximate measurements of multiple in-scene objects to estimate the 3D state of a single target object. Our approach is able to generate accurate estimates of the target object by combining heterogeneous knowledge from multiple contributors regarding multiple different objects that share a spatial relationship. We evaluate our joint object estimation approach with 363 crowd workers and show that the proposed method can reduce errors in a target object's 3D location estimation by over 40%, while requiring only 35% as much human time. Our work introduces a novel way to enable groups of people with different perspectives and knowledge to achieve more accurate collective performance on challenging visual annotation tasks.

HONORABLE MENTION AWARD

[Data and Power: Archival Theory as a Framework for Data Preservation Practice](#)

Sarita Schoenebeck, Paul Conway

Wed., Oct. 21, 10-11:30 a.m.

Digital data pervades everyday life, from photos shared on social media to voice commands to Amazon Alexa. However, a widespread industry culture of "move fast and break things" has compelled data management practices that prioritize profit over appraisal. This paper draws from archival theory to radically reconsider data stewardship practices that reject data storage as neutral or objective, and instead foreground control, power, subjectivity, and emotion. We draw on postmodern archival theory that recognizes the archive as a powerful and subjective curator of identity and memory. The theoretical basis of archival appraisal practices, in turn, establishes the value of the archival record which determines the need to save it. With appraisal theory as a backbone, we conducted an interview study with older adults (N=17), ages 51-72, who are in a life stage of making transitional decisions about the experiences and memories that are worth keeping or discarding. We sketch data management paths, drawn from archival theory, that forefront legacy, life transitions, precarity, and control.

[Anti-Racism in Design](#)

Tawanna R. Dillahunt, Jamika Burge, Christina Harrington, Yolanda A. Rankin, Angela D.R. Smith, Jakita Thomas

Mon., Oct. 19, 10-11:30 a.m.

Today's social justice movement is spurring our design and tech communities to consider the presence and consequences of glaring racism, xenophobia, and systemic oppression inherent in our work. Many of us, however, have been grappling with these topics for years, adding to the body of research that both informs our understanding of basic design principles, but is also

shaping, and re-defining) the future of inclusive, human-centered design. During this interactive panel session, we will explore design through an anti-racist lens, notably, intersectionality, power, and privilege), and session participants can expect to engage in actionable, mind-shifting conversations that will challenge them to rethink what's possible and necessary to be the change we need to see in the world.

[No: Critical Refusal as Feminist Data Practice](#)

Patricia Garcia, Tonia Sutherland, Marika Cifor, Lauren Klein, Catherine D'Ignazio, Niloufar Salehi

Tue., Oct. 20, 10-11:30 a.m.

Critical refusal is a generative concept for challenging harmful data practices, while simultaneously negotiating and developing alternative actions. The panelists will discuss two projects, Data Feminism and The Feminist Data Manifest-No, to illustrate how critical refusal can be used as a tool for generating alternative data practices within CSCW and social computing research. The panel will be of interest to academic and industry attendees who seek to examine concerns of power and privilege, including and reaching beyond gender-based inequalities, within the field of data science. Attendees will also brainstorm refusals and commitments that are meaningful to their research and practice.

DIVERSITY AND INCLUSION RECOGNITION

[Watched, but Moving: Platformization of Beauty Work and Its Gendered Mechanisms of Control](#)

Ira Anjali Anwar, **Julie Hui**, **Joyojeet Pal**

Mon., Oct. 19 noon - 1:30 p.m.

Women gig workers face unique challenges in on-demand platforms as gendered aspects of class, caste and labor participation intersect with moments of control experienced on the job. Through in-depth interviews with 19 beauty workers on on-demand home service platforms, we explore how the platformization of informal beauty work in India has ruptured dominant socio-cultural structures of control that have traditionally shaped women's mobility and access to work. This paper maps the ways in which women beauty gig workers experience and are impacted by algorithmic and bureaucratic management practices prevalent in the gig economy, in the context of home service platforms in Bangalore. We find that platform control impacts lives in myriad ways, beyond the conditions of work. Women workers negotiate their identities and sense of agency through the visibility afforded by platform control mechanisms. Yet, despite these subversions, being on a platform does not fundamentally change the socio-cultural logic that restricts women's lives in India. These mechanisms work to entrench power asymmetries between customers and workers, as well as maintain them between the platform and the worker.

["Learning for the Rise of China": Exploring Uses and Gratifications of State-Owned Online Platform](#)

Alex Jiahong Lu, Xuecong Xu

Tue, Oct 20 08:00 - 09:30 a.m.

On January 1, 2019, the Chinese government launched the online platform XueXi QiangGuo, which translates into "Learning for the Rise of China." Within two months, XueXi became the top-downloaded item of the month on Apple's App Store in China. In response, we conducted

semi-structured interviews with 28 active XueXi users in China to investigate their uses and gratifications of this state-owned online platform. Our results reveal seven key motivations: compliance, self-status seeking, general information seeking, job support, entertainment, patriotism, and learning. This state-owned platform introduced a new model for official information dissemination and political communication through direct surveillance and monitoring, leveraging and fostering emotional attachment, and offering heterogeneous apolitical content. We discuss the intended and unintended ramifications of these components, highlighting the importance of future CSCW research to critically engage with pluralist political narratives situated in varied societies, especially those outside the reach of Western democracy.

[The Situated, Relational, and Evolving Nature of Epilepsy Diagnosis](#)

Megh Marathe, Kentaro Toyama

Mon., Oct. 19, 12-1:30 p.m.

An understanding of medical diagnosis as it is practiced is essential for those seeking to support it using intelligent systems. Through the case of epilepsy, we show that diagnosis is a situated, relational, and evolving process that accounts for information well beyond the patient's physiology, even for physiological phenomena like seizures. Through observations and interviews with neurologists, we show that the meaning of brainwaves and other physiological data depends upon a range of patient-specific and contextual factors, such as age, comorbidities, and mealtimes. Further, we show that diagnosis is partly determined by social factors such as the activities of caregivers and other clinicians, and environmental factors such as faulty electrical wiring. Additionally, diagnostic classifications can evolve in response to new information: events that were once considered seizures can be reinterpreted as clinically irrelevant and vice versa. We contribute a broader sociotechnical perspective to literature on intelligent decision making in healthcare and discuss implications for the design of decision support systems that can better support the work of medical diagnosis.

DIVERSITY AND INCLUSION RECOGNITION

[Designing Digital Safe Spaces For Peer Support and Connectivity in Patriarchal Contexts](#)

Mustafa Naseem, Fouzia Younas, Maryam Mustafa

Wed., Oct. 21 10-11:30 a.m.

This paper explores the opportunities and challenges in designing peer-support mechanisms for low-income, low-literate women in Pakistan, a patriarchal and religious context where women's movements, social relations and access to digital technologies are restricted. Through a qualitative, empirical study with 21 participants we examine the cultural and patriarchal framework where shame and fear of defamation restrict the seeking of support for personal narratives around taboo subjects like abortion, sexual harassment, rape and domestic abuse. Based on our qualitative data we also conduct a participatory design activity with 15 low-income, low-literate women to explore the specific design of peer-support technologies for support seeking and the sharing of sensitive and taboo narratives in a deeply patriarchal society. The design concerns raised by our participants regarding privacy, anonymity and safety

provide CSCW researchers with valuable guidelines about designing for social connections and support for vulnerable populations within a particular context.

[“At the End of the Day Facebook Does What It Wants”: How Users Experience Contesting Algorithmic Content Moderation](#)

Kristin Vaccaro, **Christian Sandvig**, Karrie Karahalios

Tue, Oct 20 08:00 - 09:30

Interest has grown in designing algorithmic decision making systems for contestability. In this work, we study how users experience contesting unfavorable social media content moderation decisions. A large-scale online experiment tests whether different forms of appeals can improve users' experiences of automated decision making. We study the impact on users' perceptions of the Fairness, Accountability, and Trustworthiness of algorithmic decisions, as well as their feelings of Control (FACT). Surprisingly, we find that none of the appeal designs improve FACT perceptions compared to a no appeal baseline. We qualitatively analyze how users write appeals, and find that they contest the decision itself, but also more fundamental issues like the goal of moderating content, the idea of automation, and the inconsistency of the system as a whole. We conclude with suggestions for – as well as a discussion of the challenges of – designing for contestability.

Posters

[Engaging Offline Communities Online: A Case Study of Independent Theaters During COVID-19](#)

Sam Addison Ankenbauer, Alex Jiahong Lu

Tue., Oct. 20, noon-1 p.m.

COVID-19 has been detrimental to small businesses like independent theaters that exist to engage with the public offline. Independent theaters across the US have temporarily closed their doors, leaving their function as vessels for the arts unfulfilled and their business solvency in question. As such, theaters have turned to various technologies to increase their virtual presence and to (re)connect with their communities online. We present an investigation into theaters' strategies of 1) attracting existing patrons, 2) encouraging commitment, and 3) fostering contribution in an unforeseen public health crisis where face-to-face interactions are no longer possible. Our results suggest that emphasizing shared identity and relying on technologies to facilitate new forms of interactions that were not available offline are critical to the migration of offline community to online settings.

[Reasons for Sharing With Separate Social Media Audiences During Life Transitions](#)

Tianxiao Liu, Jasmine Glover, Oliver L. Haimson

Tue., Oct. 20, noon-1 p.m.

During life transitions, people sometimes turn to social media audiences separate from their typical online networks. By qualitatively analyzing open-ended data from a U.S.-based survey

(N = 775), we examined why and how people discuss life transitions with these separate audiences. Survey questions asked about life events experienced, separate networks and the interactions that occurred there, and participants' reasoning behind these online behaviors. We found that people use separate networks, especially online support groups, to interact with others anonymously, receive informational and emotional support, and have direct and focused discussions with people with similar experiences.

Demos

[WireOn: Supporting Remote Collaboration for Embedded System Development](#)

Yan Chen, Yaxing Yao, Jasmine Jones

Tue., Oct. 20, noon-1 p.m.

The rise of the Maker movement has led to a growing number of developers who prototype and program embedded systems. When programming, these developers often rely on support from various resources—including other developers. However, other developers may not always be available to provide support in person, and existing technologies for online help, such as voice chat or Q&A forms, face the fundamental limitation of inspecting and manipulating developers' circuit boards. As a result, remote helpers can only provide suggestions or guidance, rather than contributing via physical changes made to the devices. And only end-user developers have the ability to carry out the planned tasks. In this paper, we demonstrate WireOn, a programming support research prototype that allows remote helpers to directly perform tasks on end-user developers' circuit board by teleoperating a robot arm. The helpers can control the robot arm via a web user interface to perform simple tasks such as pick-and-place the electronic components, visually inspect the physical artifacts in real time, and also review the code that the end-user sent over to them. The new system has the potential to enable more efficient remote collaboration on embedded system development. (<https://youtu.be/uggyxHAILDQ>)

Workshops

[“Public Scholarship and CSCW: Trials and Twitterations”](#)

Sarah Gilbert, Casey Fiesler, **Lindsay Blackwell**, Michael Ann Devito, **Michaelanne Dye**, Shamika Goddard, Kishonna Gray, David Nemer, Estelle Smith.

From tweeting, to blogging, to engagement with the media, scholars in CSCW engage in a variety of forms of public scholarship. Public scholarship can result in positive outcomes, such as community engagement, accessible research, and self-promotion. Further, public scholarship can support ethical research as a way to (1) reconnect with participants after data collection; and (2) increase the societal benefit of the research. However, despite these benefits there are also challenges and risks associated with engaging in public scholarship, particularly for early career researchers and those who are marginalized. This workshop will bring together those who already engage or are interested in this practice to discuss how to integrate public scholarship in our work, identify best practices for this type of work in the context of CSCW, including the ethical implications of outreach, and develop strategies to effectively support those most affected by the potential risks.

[The Future of Social AR](#)

Ilyena Hirskyj-Douglas, Anna Kantosalo, Andrés Monroy-Hernández, Joelle Zimmermann, **Michael Nebling**, Mar Gonzal

As augmented reality (AR) technologies become more pervasive, there is a growing interest in Social AR systems designed to support face-to-face interactions. We define Social AR as the use of AR technology to initiate, support, encourage, or mediate in-person interactions of two or more people. This technology typically involves digitally augmenting or transforming what people see or hear. However, little is known about how Social AR technologies shape and affect social interactions in face-to-face settings. At this early juncture, it is crucial to reflect and discuss the ethical, political, societal, and privacy implications of Social AR. This workshop to be held at the Conference of Computer-Supported Collaborative Work and Social Computing (CSCW 2020) aims to bring together industry practitioners and academic researchers to discuss the opportunities and challenges of Social AR. ez-Franco

[Reconsidering Scale and Scaling in CSCW Research](#)

Chiara Rossitto, Airi Lampinen, Susanne Bødker, Ann Light, Katie Berns, **Julie Hu**

This one-day workshop invites discussion on the various socio-technical processes and dynamics that characterize scale and scaling in local, community-sited initiatives. Seeking to move beyond a view of scale as mere growth in numbers and a matter of technology-mediated replication, the workshop aims at developing a nuanced vocabulary to talk about various forms of scale and practices of scaling in CSCW research. It will bring together interdisciplinary scholars, activists, practitioners and representatives of the public sector who wish to question and further develop the notion of scale generally associated with processes of upscaling. The workshop provides a forum to discuss: i) concepts, theories and empirical cases that broaden our view of what constitutes scale; and ii) the implications for CSCW research in assessing the long-term impact and sustenance of socio-technical innovations. The workshop will accommodate up to twenty participants and will be run virtually.