UMSI research from 2021 CSCW proceedings

University of Michigan School of Information (UMSI) faculty and students are presenting nearly thirty papers at the 2021 ACM Conference on Computer-Supported Cooperative Work (CSCW) October 23-27.

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 will be held virtually.

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.

Best Paper Awards

"Every Cloud Has a Silver Lining: Exploring Experiential Knowledge and Assets of Family Caregivers"
Ji Youn Shin, *Dima Chaar*, Catherine Elizabeth Davis, *Sung Won Choi*, Hee Rin Lee
Tue., Oct. 26, 2:30-4

Family caregivers of patients with chronic conditions often subject themselves to drastic life changes. The quality of life of the caregivers often decreases noticeably at the beginning of the caregiving trajectory, because they typically reorient their lives to focus on the patient's health status. As a result, previous studies viewed caregivers primarily as people who need help and focused on how technologies can support them. However, in our study, we found that caregivers are also capable of developing their own experiential knowledge and strategies, which have been invisible in previous caregiver studies. By conducting in-home interviews with fourteen family caregivers, we present the types of new knowledge and coping strategies family caregivers have developed from their lived experiences during everyday caregiving tasks. These include 1) establishing new mindsets, 2) developing mindful activities, 3) building relationship management strategies, and 4) sharing experiences with people in their own networks. Based on our findings, we call for an asset-based approach that will help researchers notice the capabilities of caregivers. This approach could enable researchers to be more reflexive in the incorporation of caregivers' devalued knowledge within their system designs.

Honorable Mention Awards

"Data Subjects' Conceptualizations of and Attitudes Toward Automatic Emotion Recognition-Enabled Wellbeing Interventions on Social Media"

Kat Roemmich, **Nazanin Andalibi**
Mon., Oct. 25, 2-3:30 p.m.

Automatic emotion recognition (ER)-enabled wellbeing interventions use ER algorithms to infer the emotions of a data subject (i.e., a person about whom data is collected or processed to enable ER) based on data generated from their online interactions, such as social media activity, and intervene accordingly. The potential commercial applications of this technology are widely acknowledged, particularly in the context of social media. Yet, little is known about data subjects' conceptualizations of and attitudes toward automatic ER-enabled wellbeing interventions. To address this gap, we interviewed 13 US adult social media data subjects regarding social media-based automatic ER-enabled wellbeing interventions. We found that participants' attitudes toward automatic ER-enabled wellbeing interventions were predominantly negative. Negative attitudes were largely shaped by how participants compared their conceptualizations of Artificial Intelligence (AI) to the humans that traditionally deliver wellbeing support. Comparisons between AI and human wellbeing interventions were based upon human attributes participants doubted AI could hold: 1) helpfulness and authentic care; 2) personal and professional expertise; 3) morality; and 4) benevolence through shared humanity. In some cases, participants' attitudes toward automatic ER-enabled wellbeing interventions shifted when participants conceptualized automatic ER-enabled wellbeing interventions' impact on others, rather than themselves. Though with reluctance, a minority of participants held more positive attitudes toward their conceptualizations of automatic ER-enabled wellbeing interventions, citing their potential to benefit others: 1) by supporting academic research; 2) by increasing access to wellbeing support; and 3) through egregious harm prevention. However, most participants anticipated harms associated with their conceptualizations of automatic ER-enabled wellbeing interventions for others, such as re-traumatization, the spread of inaccurate health information, inappropriate surveillance, and interventions informed by inaccurate predictions. Lastly, while participants had qualms about automatic ER-enabled wellbeing interventions, we identified three development and delivery qualities of automatic ER-enabled wellbeing interventions upon which their attitudes toward them depended: 1) accuracy; 2) contextual sensitivity; and 3) positive outcome. Our study is not motivated to make normative statements about whether or how automatic ER-enabled wellbeing interventions should exist, but to center voices of the data subjects affected by this technology. We argue for the inclusion of data subjects in the development of requirements for ethical and trustworthy ER applications. To that end, we discuss ethical, social, and policy implications of our findings, suggesting that automatic ER-enabled wellbeing interventions imagined by participants are incompatible with aims to promote trustworthy, socially aware, and responsible AI technologies in the current practical and regulatory landscape in the US.

DIVERSITY & INCLUSION RECOGNITION
"Disproportionate Removals and Differing Content Moderation Experiences for Conservative, Transgender, and Black Social Media Users: Marginalization and Moderation Gray Areas"
Oliver L. Haimson, **Daniel Delmonaco**, **Peipei Nie, Andrea Wegner**
Mon., Oct. 25, 2-3:30 p.m.

Social media sites use content moderation to attempt to cultivate safe spaces with accurate information for their users. However, content moderation decisions may not be applied equally for all types of users, and may lead to disproportionate censorship related to people's genders, races, or political orientations. We conducted a mixed methods study involving qualitative and quantitative analysis of survey data to understand which types of social media users have content and accounts removed more frequently than others, what types of content and accounts are removed, and how content removed may differ between groups. We found that three groups of social media users in our dataset experienced content and account removals more often than others: political conservatives, transgender people, and Black people. However, the types of content removed from each group varied substantially. Conservative participants' removed content included content that was offensive or allegedly so, misinformation, Covid-related, adult, or hate speech. Transgender participants' content was often removed as adult despite following site guidelines, critical of a dominant group (e.g., men, white people), or specifically related to transgender or queer issues. Black participants' removed content was frequently related to racial justice or racism. More broadly, conservative participants' removals often involved harmful content removed according to site guidelines to create safe spaces with accurate information, while transgender and Black participants' removals often involved content related to expressing their marginalized identities that was removed despite following site policies or fell into content moderation gray areas. We discuss potential ways forward to make content moderation more equitable for marginalized social media users, such as embracing and designing specifically for content moderation gray areas.

"Algorithmic Folk Theories and Identity: How TikTok Users Co-Produce Knowledge of Identity and Engage in Algorithmic Resistance"
Nadia Karizat, **Daniel Delmonaco**, Motahhare Eslami, **Nazanin Andalibi**
Tue., Oct. 26 10-11:30 a.m.

Algorithms in online platforms interact with users' identities in different ways. However, little is known about how users understand the interplay between identity and algorithmic processes on these platforms, and if and how such understandings shape their behavior on these platforms in return. Through semi-structured interviews with 15 US-based TikTok users, we detail users' algorithmic folk theories of the For You Page algorithm in relation to two interconnected identity types: person and social identity. Participants identified potential harms that can accompany algorithms' tailoring content to their person identities. Further, they believed the algorithm actively suppresses content related to marginalized social identities based on race and ethnicity, body size and physical appearance, ability status, class status, LGBTQ identity, and political and social justice group affiliation. We propose a new algorithmic folk theory of social feeds—The Identity Strainer Theory—to describe when users believe an algorithm filters out and suppresses certain social identities. In developing this theory, we introduce the concept of algorithmic privilege as held by users positioned to benefit from algorithms on the basis of their identities. We further propose the concept of algorithmic representational harm to refer to the harm users experience when they lack algorithmic privilege and are subjected to algorithmic symbolic annihilation. Additionally, we describe how participants changed their behaviors to shape their algorithmic identities to align with how they understood themselves, as well as to

resist the suppression of marginalized social identities and lack of algorithmic privilege via individual actions, collective actions, and altering their performances. We theorize our findings to detail the ways the platform's algorithm and its users co-produce knowledge of identity on the platform. We argue the relationship between users' algorithmic folk theories and identity are consequential for social media platforms, as it impacts users' experiences, behaviors, sense of belonging, and perceived ability to be seen, heard, and feel valued by others as mediated through algorithmic systems.

"Challenging Passive Social Media Use: Older Adults as Caregivers Online"
Robin N. Brewer, **Sarita Schoenebeck**, *Kerry Lee*, *Haripriya Suryadevara*
Tue., Oct. 26, 11:30 a.m. - 1 p.m.

Older adults are often portrayed as passive social media users who consume content rather than actively posting content. However, this binary divide between active and passive social media use overlooks nuanced kinds of engagement online. Via an eye-tracking study of older adults' Facebook use, this work shows how not clicking or commenting on content can involve engaged kinds of social media use even if they are not visible to other users or to the platform. Older adults' decisions to not actively click or comment on social media content—an act which is often associated with non-engagement—can be intentional and relational acts of caregiving. We draw from feminist care theories to draw parallels between the invisibility of care work that older adults do on social media and the invisibility often rendered in their offline lives. We discuss theoretical, methodological, and design implications for supporting older adults as engaged participants in relational and intentional care work.

"Exploring Email-Prompted Information Needs"
Joey Chiao-Yin Hsiao, Frank Bentley
Wed., Oct. 27, 10-11:30 a.m.

Over three billion people use personal email accounts for a wide variety of communications, largely from businesses. These messages often require additional information that users need to look for outside of the email itself, such as store hours, bill details, or related news articles. We studied these "email-prompted information needs" in a pilot interview-based study, a two-week diary study, and a large-scale survey with 790 total participants, finding that Notification, Deal, and Newsletter messages were the most likely to spark a need for external information. We conclude with several designs evaluated in a concept evaluation study with 276 participants and implications for the design of personal email services to better meet users' external information needs.

"Negotiating Repairedness: How Artifacts Under Repair Become Contingently Stabilized"
Ju Yeon Jung, Thomas Steinberger, **Mark S. Ackerman**, **John King**
Wed., Oct. 27 11:30 a.m. - 1 p.m.

This paper examines "repairedness" — the contingently stable, working version of an artifact under repair that is negotiated out of multiple possible versions to bring about the temporary

conclusion of repair work. Our paper draws on an ethnographic study of an analog electronics repair community in Seoul, South Korea to develop two contributions. First, studying processes of negotiating the repairedness of an artifact accounts for contingency in the properties of the artifact itself, which differs from contingencies in collaborative work practices that have been a focus of CSCW research on repair. Second, a concept of repairedness highlights how ongoing processes of interacting with an artifact nonetheless need to be brought to contingent conclusions, suggesting that an artifact's properties are a valuable site for sustainable engagement. These contributions help CSCW research on repair account for the multiplicity of artifacts highlighted by STS scholars as integral to how humans sustainably engage with artifacts in their practices.

"Datasheets for Datasets help ML engineers notice and understand ethical issues in training data"
Karen L. Boyd
Wed., Oct. 27 1:30-3 p.m.

The social computing community has demonstrated interest in the ethical issues sometimes produced by machine learning (ML) models, like violations of privacy, fairness, and accountability. This paper discovers what kinds of ethical considerations machine learning engineers recognize, how they build understanding, and what decisions they make when working with a real-world dataset. In particular, it illustrates ways in which Datasheets for Datasets, an accountability intervention designed to help engineers explore unfamiliar training data, scaffolds the process of issue discovery, understanding, and ethical decision-making. Participants were asked to review an intentionally ethically problematic dataset and asked to think aloud as they used it to solve a given ML problem. Out of 23 participants, 11 were given a Datasheet they could use while completing the task. Participants were ethically sensitive enough to identify concerns in the dataset; participants who had a Datasheet did open and refer to it; and those with Datasheets mentioned ethical issues during the think-aloud earlier and more often than those without. The think-aloud protocol offered a grounded description of how participants recognized, understood, and made a decision about ethical problems in an unfamiliar dataset. The method used in this study can test other interventions that claim to encourage recognition, promote understanding, and support decision-making among technologists.

Papers

"Asymmetries in Online Job-Seeking: A Case Study of Muslim-American Women"
Tanisha Afnan, Hawra Rabaan, Kyle M. L. Jones, Lynn Dombrowski
Mon., Oct. 25, noon - 1:30 p.m.

As job-seeking and recruiting processes transition into digital spaces, concerns about hiring discrimination in online spaces have developed. Historically, women of color, particularly those with marginalized religious identities, have more challenges in securing employment. We conducted 20 semi-structured interviews with Muslim-American women of color who had used

online job platforms in the past two years to understand how they perceive digital hiring tools to be used in practice, how they navigate the US job market, and how hiring discrimination as a phenomenon is thought to relate to their intersecting social identities. Our findings allowed us to identify three major categories of asymmetries (i.e., the relationship between the computing algorithms' structures and their users' experiences): (1) process asymmetries, which is the lack of transparency in data collection processes of job applications; (2) information asymmetries, which refers to the asymmetry in data availability during online job-seeking; and (3) legacy asymmetries, which explains the cultural and historical factors impacting marginalized job applicants. We discuss design implications to support job seekers in identifying and securing positive employment outcomes.

"Constructing Authenticity on TikTok: Social Norms and Social Support on the 'Fun' Platform"
Kristen Barta, **Nazanin Andalibi**
Mon., Oct. 25, noon - 1:30 p.m.

Authenticity, generally regarded as coherence between one's inner self and outward behavior, is associated with myriad social values (e.g., integrity) and beneficial outcomes, such as psychological well-being. Scholarship suggests, however, that behaving authentically online is complicated by self-presentation norms that make it difficult to present a complex self as well as encourage sharing positive emotions and facets of self and discourage sharing difficult emotions. In this paper, we position authenticity as a self-presentation norm and identify the sociomaterial factors that contribute to the learning, enactment, and enforcement of authenticity on the short-video sharing platform TikTok. We draw on interviews with 15 U.S. TikTok users to argue that normative authenticity and understanding of TikTok as a "fun" platform are mutually constitutive in supporting a "just be you" attitude on TikTok that in turn normalizes expressions of both positive and difficult emotions and experiences. We consider the social context of TikTok and use an affordance lens to identify anonymity, of oneself and one's audience; association between content and the "For You" landing page; and video modality of TikTok as factors informing authenticity as a self-presentation norm. We argue that these factors similarly contribute to TikTok's viability as a space for social support exchange, and address the utility of the comments section as a site for both supportive communication and norm judgment and enforcement. We conclude by considering the limitations of authenticity as social norm and present implications for designing online spaces for social support and connection.

"The Online Authenticity Paradox: What Being 'Authentic' on Social Media Means, and Barriers to Achieving It"
Oliver L. Haimson, *Tianxiao Liu*, **Ben Zefeng Zhang**, **Shanley Corvite**
Mon., Oct. 25, noon - 1:30 p.m.

People often strive to present themselves authentically on social media, but this may not be possible for everyone. To understand how people view online authenticity, how it relates to social media sharing behaviors, and whether it is achievable, we interviewed 28 social media users who had recently experienced major life transitions. We found that to many participants, online authenticity required presenting a consistent, positive, and "true" self across online and

offline contexts. Though most stated that they considered online authenticity achievable, their social media self-disclosure behaviors around life transitions revealed what we call the online authenticity paradox: people strive to achieve online authenticity, yet because doing so requires sharing negative experiences on social media, online authenticity is often unreachable, or is possible only at great personal cost - especially for those with marginalized identities and difficult life experiences.

"Algorithmic Risk Assessments Can Alter Human Decision-Making Processes in High-Stakes Government Contexts"
Ben Green, Yiling Chen
Mon., Oct 25, 2-3:30 p.m.

Governments are increasingly turning to algorithmic risk assessments when making important decisions (such as whether to release criminal defendants before trial). Policymakers assert that providing public servants with algorithms will improve human risk predictions and thereby lead to better (e.g., fairer) decisions. Yet because many policy decisions require balancing risk-reduction with competing goals, improving the accuracy of predictions may not necessarily improve the quality of decisions. Through an experiment with 2,140 lay participants simulating two high-stakes government contexts, we interrogate the assumption that improving human prediction accuracy with risk assessments will improve human decisions. We provide the first direct evidence that risk assessments can systematically alter how people factor risk into their decisions. These shifts counteract the potential benefits of improved prediction accuracy. In the pretrial setting of our experiment, the risk assessment made participants more sensitive to increases in perceived risk when making decisions; this shift increased the racial disparity in pretrial detention by 1.9%. In the government home improvement loans setting of our experiment, the risk assessment made participants more risk-averse when making decisions; this shift reduced government aid by 8.3%. These results demonstrate the potential limits and harms of efforts to improve public policy by incorporating predictive algorithms into multifaceted policy decisions. If these observed behaviors occurred in practice, presenting algorithms to public servants would generate unexpected and unjust shifts in public policy without being subject to democratic deliberation or oversight.

"Code of Conduct Conversations in Open Source Software Projects on Github"
Renee Li, Laura Dabbish, Pavitthra Pandurangan, Hana Frluckaj
Mon., Oct. 25, 2-3:30 p.m.

The rapid growth of open source software necessitates a deeper understanding of moderation and governance methods used within these projects. The code of conduct, a set of rules articulating standard behavior and responsibilities for participation within a community, is becoming an increasingly common policy document in open source software projects for setting project norms of behavior and discouraging negative or harassing comments and conversation. This study describes the conversations around adopting and crafting a code of conduct as well as those surrounding community governance. We conduct a qualitative analysis of a random sample of GitHub issues that involve the code of conduct and identify different categories of

surrounding conversation. We find that codes of conduct are used both proactively and reactively to govern community behavior in project issues. Oftentimes, the initial addition of a code of conduct does not involve much community participation and input. However, a controversial moderation act is capable of inciting mass community feedback and backlash. Project maintainers balance the tension between disciplining potentially offensive forms of speech and encouraging broad and inclusive participation. These results have implications for the design of inclusive and effective governance practices for open source software communities.

"Implications for Supporting Marginalized Job Seekers: Lessons from Employment Centers"
Tawanna R. Dillahunt, **Matthew Garvin**, **Marcy Held**, **Julie Hui**
Mon., Oct. 25, 2-3:30 p.m.

Rapid changes in technology are expected to limit the availability of decent work for millions of people worldwide. This particularly disadvantages socially and economically marginalized job seekers who are already being pushed into lower-wage precarious work with increasing levels of job insecurity. While the number of employment support tools that match job seekers to employers has been growing, marginalized job seekers still significantly rely on physical employment centers that have a track record of supporting the specific needs associated with marginalization and economic constraints. We drew from prior HCI and CSCW literature uncovering the employment and technology-related challenges that marginalized job seekers face and from the Psychology of Working Theory to frame our research questions and results. To complement this prior work, we investigated how employment center staff work with marginalized job seekers and moderate factors to securing decent work. We found in an interview of 21 employment center staff, career advisors and business services coordinators that they performed significant work to prepare and encourage marginalized job seekers in applying to positions, while also training employers to be more inclusive and open-minded. Career advisors worked directly with job seekers to connect them with external resources, provide encouragement, strategize long-term goals, and mitigate feelings of stigma. Business services coordinators worked directly with employers to prepare job positions and employee support programs. Drawing from the expertise of employment centers, we contribute a framework for designing employment support tools that better serve the needs of marginalized job seekers, and outline tangible design implications that complement the support these organizations provide.

"Child Safety in the Smart Home: Parents' Perceptions, Needs, and Mitigation Strategies"
Kaiwen Sun, **Yixin Zou**, *Jenny Radesky*, **Christopher Brooks**, **Florian Schaub**
Tue., Oct. 26, 10-11:30 a.m.

Concerns about child physical and digital safety are emerging with families' adoption of smart home technologies such as robot vacuums and smart speakers. To better understand parents' definitions and perceptions of child safety regarding smart home technologies, we interviewed 23 parents who are smart home adopters. We contribute insights into parents' perceptions of the physical and digital safety risks smart home technologies pose to children, and how such

perceptions formed and changed across three phases. In acquiring smart home devices, parents already considered whether the device could cause physical harm to their children or pose privacy and security risks. Once children become active users of smart home technologies, parents however reported encountering unanticipated physical safety risks and digital safety issues (e.g., exposure to unsuitable content) that required their mitigation strategies. As their children grow up, parents further expressed the need to shift attention from physical safety to digital safety. Parents' safety perceptions influence how they involve children in smart home interactions and implement mitigation strategies, such as restricting access to certain devices and using parental controls. We identify six factors that shape parents' perception and evaluation of smart home safety risks to children, including parenting style, parents' tech-savviness, parents' trust in tech companies, children's age and developmental differences, news media, and device characteristics. We provide design and policy recommendations to better protect children's safety in the smart home environment.

"Data Work in Education: Enacting and Negotiating Care and Control in Teachers' Use of Data-Driven Classroom Surveillance Technology"
Alex Jiahong Lu, **Tawanna R. Dillahunt**, **Gabriela Marcu**, **Mark S. Ackerman**
Tue., Oct. 26, 10-11:30 a.m.

Today, teachers have been increasingly relying on data-driven technologies to track and monitor student behavior data for classroom management. Drawing insights from interviews with 20 K-8 teachers, this paper unpacks how teachers enacted both care and control through their data work in collecting, interpreting, and using student behavior data. In this process, teachers found themselves subject to surveilling gazes from parents, school administration, and students. As a result, teachers had to manipulate the student behavior data to navigate the balance between presenting a professional image to surveillants and enacting care/control that they deemed appropriate. This paper identifies and unpacks two nuanced forms of teachers' data work that have been understudied in CSCW: 1) data work as recontextualizing meanings and 2) data work as resisting surveillance. We discuss teachers' struggle over (in)visibility and their negotiation of autonomy and subjectivity in these two forms of data work. We highlight the importance of foregrounding and making space for data workers' (in our case, teachers') resistance and negotiation of autonomy in light of datafication.

"How AI Developers Overcome Communication Challenges in a Multidisciplinary Team: A Case Study"
David Piorkowski, Soya Park, **April Yi Wang**, Dakuo Wang, Michael Muller, Felix Portnoy
Tue., Oct 26., 11:30 a.m. - 1 p.m.

The development of AI applications is a multidisciplinary effort, involving multiple roles collaborating with the AI developers, an umbrella term we use to include data scientists and other AI-adjacent roles on the same team. During these collaborations, there is a knowledge mismatch between AI developers, who are skilled in data science, and external stakeholders who are typically not. This difference leads to communication gaps, and the onus falls on AI developers to explain data science concepts to their collaborators. In this paper, we report on a

study including analyses of both interviews with AI developers and artifacts they produced for communication. Using the analytic lens of shared mental models, we report on the types of communication gaps that AI developers face, how AI developers communicate across disciplinary and organizational boundaries, and how they simultaneously manage issues regarding trust and expectations.

"Tedious Versus Taxing: The Nature of Work in a Behavioral Health Context"
Megh Marathe, **Yoonseon Yi**, **Chia-Hsuan Su**, **Ting-Wei Chang**, **Gabriela Marcu**
Tue., Oct. 26, 11:30 a.m. - 1 p.m.

The goal of this study was to examine the work practices of behavioral health professionals with a view towards designing interactive systems to support their work. We conducted a qualitative workplace study, including in situ observations and semi-structured interviews, in a multidisciplinary clinic treating pediatric feeding disorders. This paper contributes a detailed characterization of clinicians' work practices and conducts a comparative analysis of three types of work: treatment, record management, and preparation work. We found that clinicians have a preference for taxing over tedious work. For example, they experience real-time data collection as more taxing but less tedious than retroactive data entry. Design efforts should balance the tension between addressing the taxing (data collection during meals) versus the tedious (manually entering data into spreadsheets). Although addressing the taxing improves within-routine efficiency, addressing the tedious improves overall morale. Further, we hypothesize that there is a rewarding or unrewarding quality to work that is dictated in part by its social, temporal, and clinical characteristics. We discuss conceptual and design implications for supporting clinical work, and highlight considerations unique to behavioral health.

"Challenges in the Parent-Child Communication of Health-related Information in Pediatric Cancer Care"
Woosuk Seo, **Ayse G. Buyuktur**, *Sung Won Choi*, *Laura Sedig*, **Sun Young Park**
Tue., Oct. 26, 2:30-4 p.m.

Previous works have shown that effective communication between parental caregivers and child patients has many benefits to the children, such as providing emotional support and coping skills for health management. Drawing on semi-structured interviews, we have identified the challenges parental caregivers face when communicating with their child about health-related information in daily illness management. Three salient challenges that the parental caregivers encountered include: (i) acknowledging different perceptions and approaches to being a cancer patient, (ii) choosing an appropriate communication method, and (iii) understanding their child's uncommunicated emotions. Based on these challenges, we recognize distinctive, yet implicit, needs that children develop during the illness trajectory, affecting the parent-child dyadic relationship. We discuss design opportunities for a collaborative system that enhances the parent-child dyadic communication by supporting the child's implicit and dynamically changing needs throughout the illness trajectory and beyond.

"Delivery Work and the Experience of Social Isolation"

Bhavani Seetharaman, **Joyojeet Pal**, **Julie Hui**
Tue., Oct. 26, 2:30-4 p.m.

The isolating nature of gig work has created unintended consequences over how workers engage with peers, friends, family, and society in general. We performed a qualitative study involving interviews with 21 delivery workers in Bangalore, India to understand how workers experienced and responded to social isolation perpetuated by the nature of their jobs. We found that the stigma and individual nature of app-based delivery work restricts access to inter-relational and instrumental support. As a response, workers organized peer networks for both companionship and emergency assistance. We analyze how the cultural context of India heightens these experiences, and offer ideas for mitigating the risks of isolation as a result of gig work.

"Shared Understanding in Care Coordination for Children's Behavioral Health"
Olivia K. Richards, Adrian Choi, **Gabriela Marcu**
Tue., Oct. 26, 2:30-4 p.m.

Care coordination involves crossing boundaries to connect services in support of the health and well-being of an individual. In this paper, we describe how care coordination depends on the ability to develop shared understanding of care goals and progress. A distributed group of professionals and non-professional caregivers need to share information to provide consistent and holistic support across settings. We conducted fieldwork comprising of 20 interviews and 51 hours of observation across three different programs focused on children's behavioral health. From this empirical investigation of practices used by distributed care teams, we generated a conceptual framework of shared understanding in care coordination. We identified barriers to shared understanding, as well as nine practices that contribute to its development via two key mechanisms: (1) building relationships across boundaries, and (2) sharing actionable information. We conclude with design implications for enhancing the collaborative practices of members of a care team to cross boundaries despite the barriers that are common in behavioral health and other contexts requiring complex care coordination.

"How Content Authored by People with Dementia Affects Attitudes towards Dementia"
Amanda Lazar, **Robin N. Brewer**, Hernisa Kacorri, Jonggi Hong, Mary Nicole Dugay Punzalan, **Maisarah Mahathir**, **Olivia K. Richards**, Warren Ross
Wed., Oct. 27, 10-11:30 a.m.

Negative attitudes shape experiences with stigmatized conditions such as dementia, from affecting social relationships to influencing willingness to adopt technology. Consequently, attitudinal change has been identified as one lever to improve life for people with stigmatized conditions. Though recognized as a scaleable approach, social media has not been studied in terms of how it should best be designed or deployed to target attitudes and understanding of dementia. Through a mixed methods design with 123 undergraduate college students, we study the effect of being exposed to dementia-related media, including content produced by people with dementia. We selected undergraduate college students as the target of our intervention, as

they represent the next generation that will work and interact with individuals with dementia. Our analysis describes changes over the period of two weeks in attitudes and understanding of the condition. The shifts in understanding of dementia that we found in our qualitative analysis were not captured by the instrument we selected to assess understanding of dementia. While small improvements in positive and overall attitudes were seen across all interventions and the control, we observe a different pattern with negative attitudes, where transcriptions of content produced by people with dementia significantly reduced negative attitudes. The discussion presents implications for supporting people with dementia as content producers, doing so in ways that best affect attitudes and understanding by drawing on research on cues and interactive media, and supporting students in changing their perspectives towards people with dementia.

"Sensemaking and Coping After Pregnancy Loss: The Seeking and Disruption of Emotional Validation Online"
Nazanin Andalibi, **Patricia Garcia**
Wed., Oct. 27, 10-11:30 a.m.

Emotional validation describes when one believes that their activities, emotions, beliefs, or other reactions are relevant and meaningful given the circumstance. When people experience distressing, stigmatizing life events, their state of emotional validation and thus their perceived sense of normalcy is often disrupted. Online spaces offer opportunities for coping, managing, and making sense of distress and stigma. In this paper, we focus on pregnancy loss as the context of inquiry and as an important example of a disruptive experience that is also associated with stigma. We examine how online spaces help facilitate or disrupt the process of achieving emotional validation among pregnancy loss survivors. We conducted in-depth interviews with women in the United States who had recently experienced a pregnancy loss. We found that individuals seeking a sense of perceived normalcy after pregnancy loss engage in two forms of validation processes that result in emotional validation—informational and experiential. We identified encounters that disrupt the process of seeking, achieving, and maintaining emotional validation related to: information, designs, algorithms, and interpersonal interactions. We introduce the concept of algorithmic symbolic annihilation to describe the representational and emotional harm participants experienced when they felt they were targets of algorithms assuming that all desired pregnancies proceed as expected. Algorithmic symbolic annihilation refers to how algorithms perpetuate normative and stereotypical narratives about phenomena, where what they account for has power and authority, and what they do not account for does not. To aid in seeking, achieving and sustaining emotional validation among pregnancy loss survivors, we suggest designing for 1) representational belonging to combat symbolic annihilation and 2) information avoidance.

"Walking Into a Fire Hoping You Don't Catch: Strategies and Designs to Facilitate Cross-Partisan Online Discussions"
Ashwin Rajadesingan, **Carolyn Duran**, **Paul Resnick**, **Ceren Budak**
Wed., Oct. 27., 10-11:30 a.m.

Cross-partisan conversations are central to a vibrant democracy, allowing citizens to engage with alternate perspectives and form considered opinions. However, in the United States, amidst unprecedented levels of partisan animosity, these conversations are especially hard to have. In online spaces, such interactions often devolve into name-calling and personal attacks. We report on a qualitative study of 17 US residents who have engaged with outpartisans on Reddit, to understand their expectations and the strategies they adopt in such interactions. We find that users have multiple, sometimes contradictory expectations of these conversations, ranging from deliberative discussions to entertainment and banter, which adds to the challenge of finding conversations they like. Through experience, users have refined multiple strategies for fostering good cross-partisan engagement. Contrary to offline settings where knowing about the interlocutor can help manage disagreements, on Reddit, some users look to actively learn as little as possible about their outpartisan interlocutors for fear that such information may bias their interactions. Through design probes about hypothetical features intended to reduce partisan hostility, we find that users are actually open to knowing certain kinds of information about their interlocutors, such as non-political subreddits that they both participate in, and to having that information made visible to their interlocutors. However, making other information visible, such as the other subreddits that they participate in or previous comments they posted, though potentially humanizing, raises concerns around privacy and misuse of that information for personal attacks.

"The Wide, the Deep, and the Maverick: Types of Players in Team-based Online Games"
Julie Jiang, **Danaja Maldeniya**, Kristina Lerman, Emilio Ferrara
Wed., Oct. 27, 10-11:30 a.m.

Although player performance in online games has been widely studied, few studies have considered the behavioral preferences of players and how that impacts performance. In a competitive setting where players must cooperate with temporary teammates, it is even more crucial to understand how differences in playing style contribute to teamwork. Drawing on theories of individual behavior in teams, we describe a methodology to empirically profile players based on the diversity and conformity of their gameplay styles. Applying this approach to a League of Legends dataset, we find three distinct types of players that align with our theoretical framework: generalists, specialists, and mavericks. Importantly, the behavior of each player type remains stable despite players becoming more experienced. Additionally, we extensively investigate the benefits and drawbacks of each type of player by evaluating their individual performance, contribution to the team, and adaptation to changes in the game environment. We find that, overall, specialists tend to outperform others, while mavericks bear high risk but also potentially reap great rewards. Generalists are the most resilient to instability in the environment (game patches). We discuss the implications of these findings in terms of game design and community management, as well as team building in environments with varying levels of stability.

"'A Library of People': Online Resource-Seeking in Low-Income Communities"
Aarti Israni, **Nicole B. Ellison**, **Tawanna R. Dillahunt**
Wed., Oct. 27, 11:30 a.m. - 1 p.m.

Social media platforms provide access to informational and emotional resources that can enable low-income populations to further their socioeconomic mobility and cope with unexpected life demands. However, lack of both interpersonal trust and a sense of shared identity often prevent low-income individuals from eliciting resources from the diverse networks embedded in these platforms. Building on past research, we investigated factors that facilitated and deterred low-income members of the community-based non-profit organization Family Support Network (FSN) from seeking informational and emotional support from other members on the organization's social media platform, UpLifted. We found that despite participants' perceived shared identity, members primarily requested resources from other UpLifted members through offline interactions due to lack of interpersonal trust. We extend existing research on the limitations of shared identity and the role of interpersonal trust and social norms in facilitating resource-seeking interactions among strangers in low-income contexts. We suggest that social media platforms incorporate pseudonymous posting to facilitate relationship development and allow users to disclose their needs without revealing identifying information.

"Exploring the Experiences of Streamers with Visual Impairments"
Joonyoung Jun, **Woosuk Seo**, Jihyeon Park, Subin Park, Hyunggu Jung
Wed., Oct. 27, 11:30 a.m. - 1 p.m.

Live streaming refers to the broadcast of real-time videos, allowing people to have synchronous interactions. While researchers' interest in live streaming has increased recently, the accessibility of live streaming for people with visual impairments is still under-examined. Further studies are necessary to gain a better understanding of how streamers with visual impairments (SVI) engage in various activities on live streaming platforms. Based on semi-structured interviews with 14 participants, we identified SVI's motivations for live streaming, their unique interactions with videos and people on live streaming platforms, and the challenges they face during live streaming. Our analysis of the identified themes revealed the absence of an SVI-centered community and accessibility issues for SVI while learning to live stream, use tools, and interact with people. Based on the results of this study, we present design opportunities to better support SVI on live streaming platforms.

DIVERSITY & INCLUSION RECOGNITION
"Understanding Accessibility and Collaboration in Programming for People with Visual Impairments"
Maulishree Pandey, **Vaishnav Kameswaran**, **Hrishikesh V. Rao**, **Sile O'Modhrain**, **Steve Oney**
Wed., Oct. 27, 11:30 a.m. - 1 p.m.

There has been a growing interest in CSCW and HCI to understand the experiences of programmers in the workplace. However, the large majority of these studies have focused on sighted programmers and as a result, the experiences of programmers with visual impairments in professional contexts remain understudied. We address this gap by reporting on findings from semi-structured interviews with 22 programmers with visual impairments. We found that

programmers with visual impairments interact with a complex ecosystem of tools and a significant part of their job entails performing work to overcome the accessibility challenges inherent in this ecosystem. Furthermore, we found that the visual nature of various programming activities impedes collaboration, which necessitates the co-creation of new work practices through a series of sociotechnical interactions. These sociotechnical interactions often required invisible work and articulation work on the part of the programmers with visual impairments.

"Automatically Labeling Low Quality Content on Wikipedia By Leveraging Patterns in Editing Behaviors"
Sumit Asthana, *Sabrina Tobar Thommel*, Aaron Lee Halfaker, *Nikola Banovic*
Wed., Oct. 27, 1:30-3 p.m.

Wikipedia articles aim to be definitive sources of encyclopedic content. Yet, only 0.6% of Wikipedia articles have high quality according to its quality scale due to insufficient number of Wikipedia editors and enormous number of articles. Supervised Machine Learning (ML) quality improvement approaches that can automatically identify and fix content issues rely on manual labels of individual Wikipedia sentence quality. However, current labeling approaches are tedious and produce noisy labels. Here, we propose an automated labeling approach that identifies the semantic category (e.g., adding citations, clarifications) of historic Wikipedia edits and uses the modified sentences prior to the edit as examples that require that semantic improvement. Highest-rated article sentences are examples that no longer need semantic improvements. We show that training existing sentence quality classification algorithms on our labels improves their performance compared to training them on existing labels. Our work shows that editing behaviors of Wikipedia editors provide better labels than labels generated by crowdworkers who lack the context to make judgments that the editors would agree with.

"Practice-Based Teacher Questioning Strategy Training with ELK: A Role-Playing Simulation for Eliciting Learner Knowledge"
Xu Wang, Meredith Thompson, Kexin Yang, Dan Roy, Kenneth R. Koedinger, Carolyn Rosé, Justin Reich
Wed., Oct. 27, 1:30-3 p.m.

Practice is essential for learning. However, for many interpersonal skills, there often are not enough opportunities and venues for novices to repeatedly practice. Role-playing simulations offer a promising framework to advance practice-based professional training for complex communication skills, in fields such as teaching. In this work, we introduce ELK (Eliciting Learner Knowledge), a role-playing simulation system that helps K-12 teachers develop effective questioning strategies to elicit learners' prior knowledge. We evaluate ELK with 75 pre-service teachers through a mixed-method study. We find that teachers demonstrate a modest increase in effective questioning strategies and develop sympathy towards students after using ELK for 3 rounds. We implement a supplementary activity in ELK in which users evaluate transcripts generated from past role-play sessions. We demonstrate that evaluating conversation moves is as effective for learning as role-playing, while without requiring the

presence of a partner. We contribute design implications for role-play systems for communication strategy training.

"PuzzleMe: Leveraging Peer Assessment for In-Class Programming Exercises"
April Yi Wang, **Yan Chen**, **John Joon Young Chung**, **Christopher Brooks**, **Steve Oney**
Wed., Oct. 27, 1:30-3 p.m.

Peer assessment, as a form of collaborative learning, can engage students in active learning and improve students' learning gains. However, current teaching platforms and programming environments provide little support to integrate peer assessment for in-class programming exercises. We identified challenges in conducting in-class programming exercises and adopting peer assessment through formative interviews with instructors of introductory programming courses. To address these challenges, we introduce PuzzleMe, a tool to help CS instructors to conduct engaging in-class programming exercises. PuzzleMe leverages peer assessment to support a collaboration model where students provide timely feedback on peers' work. We propose two assessment techniques tailored to in-class programming exercises: live peer testing and live peer code review. Live peer testing can improve students' code robustness by allowing students to create and share lightweight tests with peers. Live peer code review can improve students' code understanding by intelligently grouping students to maximize meaningful code reviews. A two-week deployment study revealed that PuzzleMe encourages students to write useful test cases, identify code problems, correct misunderstandings, and learn a diverse set of problem-solving approaches from peers.

Posters

"Navigating the 'Glimmer of Hope': Challenges and Resilience among U.S. Older Adults in Seeking COVID-19 Vaccination"
Sam Addison Ankenbauer, **Alex Jiahong Lu**
Mon., Oct. 25, 3:30-5:30 p.m.

During the early distribution of the COVID-19 vaccines in the U.S., older adults aged 65 and above were prioritized in states such as Florida. The distribution primarily relied upon online systems of appointment reservations. This paper investigates the sociotechnical challenges faced by older adults in the U.S., who tend to have relatively low digital literacy, while attempting to seek and secure COVID-19 vaccine appointments. The challenges included issues with the fragmentation of appointment systems, lack of transparency in vaccination information, and technical challenges in navigating online systems. This paper discusses the emotional burdens experienced by older adults in this process, and unpacks the ways in which older adults have navigated through these challenges and their resilient strategies for seeking appointments. This paper identifies opportunities for future CSCW work in investigating citizens' infrastructuring work (especially the informal work carried out by vulnerable groups) in the wake of disrupted vaccination infrastructure and neoliberal governance.