

Research Statement

Autumn Clark

Meeting the moment with understanding, flexibility, insight, and assistance: Leveraging AI to support individual differences and experiences

My research examines how conversational AI can be leveraged to support people when organizational or societal capacity or capabilities may not be sufficient to best meet their individual needs. I am particularly interested in contexts in which current organizational and institutional support may not be available or sought out by vulnerable people, and thus, they may turn to AI for understanding, flexibility, insight, and assistance. Conversational agents can offer such individualized support, but not necessarily support a person the same way another human might. Conversational AI can also introduce errors and bias that may hamper the usefulness of the support it provides. My work therefore asks when and how these systems can be best designed and employed to expand users' comfort, agency, and access to support.

Dissertation research

My dissertation, *Meeting the moment with understanding, flexibility, insight, and assistance: Leveraging AI to support individual differences and experiences*, develops this agenda across three sources of institutional mismatch. I distinguish among contextual marginalization, arising from roles individuals occupy, such as patient; experiential marginalization, arising from events such as sexual assault or trauma; and constitutive marginalization, arising from enduring characteristics such as neurodiversity. These sources differ in the malleability, centrality, and concealability of the associated stigma or disadvantage, and therefore in the conversational-agent affordances likely to be most valuable. Across three essays, I examine how AI systems can be best designed and employed to respond to these differences.

Patient-centered narrative intake (Paper 1). In a mixed-method study, I examine how the design of AI intake assistants shapes patient comfort. The findings indicate that identity concordance and patient-centered communication influence patients' perceptions of an AI intake assistant's warmth and competence, which in turn shape psychological comfort. This work contributes to the knowledge of how people respond to healthcare AI and explains why technically capable systems may still fail when users do not feel seen, heard, or believed.

AI-mediated trauma disclosure (Paper 2). Building on the socio-interpersonal model of post-traumatic stress disorder, I am designing a qualitative study to examine when and why people turn to conversational AI for algorithmic witnessing of trauma disclosures, as well as how they use it and the advantages and disadvantages of the disclosures. The qualitative analysis will inform the design of an experiment to determine the disclosure style and algorithmic affordance combinations that may enhance well-being outcomes for people with different social affective responses to trauma.

Neurodiverse knowledge work (Paper 3). Again, using a mixed methods approach, this paper will examine how AI can serve as a personal resource that neurodivergent employees can use for job crafting. Building on the jobs demands-resources model and a self-determination-based framework for ADHD etiology, I am designing a qualitative study to examine how neurodivergent versus neurotypical employees use AI tools to craft their job given their personal and job resources and demands, and how their job crafting relates to their regulatory style, task engagement, task characteristics, and task approaches. The results of the qualitative study will inform a cross-sectional survey to examine how AI use may help reduce burnout in neurodivergent employees.

Together, the three papers contribute to the IS stream of research on artificial intelligence by delving deeply into specific usages contexts to examine how conversational AI can be effectively used for people suffering contextual, experiential, or constitutive marginalization who may not have many other viable options to turn to for support. Although contentious in some cases, these people are relying on conversational AI whether it is recommended, often because traditional support structures are not available or are prohibitive. Hence, it is important to better understand how such people may be able to derive benefit while minimizing potential harms to the greatest extent possible from these tools that they are already using.

Theoretical and methodological approach

My work draws primarily on theories of social and organizational psychology and IS use such as the stereotype content model, self-verification theory, self-determination theory, jobs demands-resources model, and affordances theory to explain how people interpret and cognitively and emotionally respond to AI behavior and how those interpretations and responses affect well-being outcomes such as comfort, distress, and burnout. I draw heavily on the IS streams of literature on artificial intelligence, privacy (information and self-disclosure), and IS use at work. Methodologically, I employ mixed method research designs. I rely on qualitative studies to identify uses, user responses, unmet needs and design requirements, cross-sectional surveys to examine the relationships between identified variables, and experiments to isolate causal mechanisms. My technical background has enabled me to develop technology artifacts to use in experimental designs. As I extend the work from my dissertation chapters, I intend to employ design science approaches to translate those mechanisms into artifacts and evaluate them in use. Across my projects, I have conducted semi-structured interviews, designed experiments, applied sentiment and linguistic analysis, and built novel technical systems. This combination allows me to move iteratively from understanding a human problem, to developing theory, to eventually designing and evaluating an intervention.

Related research and collaboration

My collaborative research has broadened my AI and privacy research programs and given me experience contributing to sustained, multi-study projects. With Dr. Mark Keith, I studied why patients misrepresent personal health information to providers and how the privacy calculus differs between healthcare and commercial contexts. This work received a best paper award at HICSS-55 and led to several follow-on projects in which I developed and led research questions within the broader program; we are currently preparing a manuscript for submission to *MISQ*. At Virginia Tech, I collaborate with Dr. Tabitha James on a Commonwealth Cyber Initiative-funded project examining how judgmental AI shapes self-perception. I developed a CNN-based application for evaluating participants' facial appearance and am now co-authoring papers that investigate the psychological consequences of receiving evaluative feedback from AI, with planned submissions to leading IS journals.

Future research agenda

My interest as a scholar is in using technology to promote social good. All technologies have the potential to be both helpful and harmful. My research agenda emphasizes understanding the psychological consequences of technology use so as to leverage that knowledge to provide design and usage guidance for emerging technologies to achieve better use outcomes for vulnerable people who may have limited access to other sources of support.

Looking ahead, I will extend the areas of study embarked upon in my dissertation. First, I will develop a broader program of AI and healthcare research in high-stakes clinical settings such as chronic illness, maternal health, and elder care. This stream will examine how to use and develop technology for these vulnerable and high-need groups that may reduce the consequences of prior dismissal experiences and help to unburden already strained healthcare systems. Second, I will extend my privacy research stream by exploring the individual considerations and consequences of disclosure decisions in different, complex contexts. Third, I will continue to examine neurodiversity and technology use, jobs, and workplaces, conducting research that can help integrate a rapidly increasing population of neurodiverse employees into IT roles and workplaces and better support them with technology. Over the next year, I plan to get involved in on-going team research projects in both the privacy and neurodiversity areas at Virginia Tech. This will allow me to build a solid pipeline with research projects and collaborations in my overlapping streams of health IT, privacy, and artificial intelligence with an emphasis on investigating problems that matter to vulnerable populations of users.