Designing for AI-Powered Social Computing Systems

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The CSCW community has been active in designing, implementing, and evaluating novel social computing systems. In recent years, there has been a rise in using AI to empower social interactions and the capabilities of these systems. While these implementations charge ahead of the establishment of ethical and legal frameworks, it is timely to reflect on the state of AI-powered social computing systems and to identify new research agendas for the community. This Special Interest Group aims to bring in researchers and practitioners from different fields to foster discussions on the key considerations and challenges in designing for AI-powered social computing systems and to promote opportunities for new research collaborations.

CCS Concepts: • **Human-centered computing → HCI theory, concepts and models**; **Collaborative and social computing systems and tools**.

Additional Key Words and Phrases: artificial intelligence, social computing systems, design, human-AI interaction

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1 AI-POWERED SOCIAL COMPUTING SYSTEMS

Social computing systems are online platforms that facilitate interaction and collaboration between people [15]. These systems enable large groups of users to connect with one another, share information and resources, and engage in collaborative activities such as discussing, problem-solving, and decision-making. Some examples of social computing systems include social media platforms,

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online communities, and collaborative tools. With the increasing capabilities of Artificial Intelligence (AI) and the release of powerful and accessible application programming interfaces like OpenAI's set of GPT models [1], there has been a growing number of applications that use AI to support user interactions. In the field of CSCW research, there is a line of research proposing novel AI-powered social computing systems or integrating AI in existing systems to enhance workflows and processes both between humans and with the AI.

For instance, StarryThoughts [6] uses a recommendation algorithm to support the public in exploring and understanding a diverse range of opinions on social issues. Wikum [19] fosters collaboration among readers and editors to construct discussion summaries that are powered by an extractive summarization algorithm. SolutionChat supports moderating real-time structured discussions by recommending appropriate chat messages to the moderators [9]. There are also systems that support the collaborative design process of AI like ModelLens [5] which visualizes model errors and enables developers to configure the system using their own error annotation ontology. These examples from the CSCW research show the diversity of AI technologies and their unlimited potential of applying to social computing systems to improve existing workflows, engage social interactions and enhance collaborations. As AI technologies will only see greater use in the social computing scene, it is timely for the community to take stock of the key considerations, challenges, and opportunities in designing AI-powered social computing systems.

2 ETHICAL CONSIDERATIONS OF USING AI IN SOCIAL COMPUTING SYSTEMS

CSCW and related communities such as FAccT and CHI have been actively researching the problems with applying AI in real-world settings. For example, the lack of transparency makes it challenging to use AI in critical decision-making scenarios where wrong decisions can have devastating consequences [20]. AI also falls short in real-life decision-making where intangible ethical and moral human factors are called for to guide decisions [4].

Introducing AI into social computing systems has created another set of societal challenges. For instance, social media recommendation algorithms meant to increase user engagement have instead led to increasing polarization and ignorance among users [13]. Reflecting the social preferences and prejudices of its designers, AI has also been found to exhibit unfair discrimination in its decision-making towards particular groups, often those that are underrepresented [12]. These problems largely went unnoticed during the design and implementation of the AI but were illuminated only after experimentation and examination by the public post-deployment.

Recent advances in generative AI have also posed new challenges as it is becoming increasingly hard to distinguish between humans and AI and there is even the potential for AI to replace human roles in social interactions. For example, Park et al. introduced 'Social Simulacra' [14], a novel prototyping technique for testing social interactions on social computing systems by simulating the dynamics of social interactions from the given community design, such as the participants' personas and the community rules. In the same vein, SyntheticUsers[2] was developed to conduct user testing without users.

What are the implications of these developments in social computing systems and to researchers and practitioners who are the key drivers of the field? Can we trust AI to assess or operate the systems, even taking humans out of the equation? Which role should AI serve and how can we ensure that it is achieved?

[1] https://openai.com/product
[2] https://www.syntheticusers.com/

3 TOWARDS UNDERSTANDING AND IMPLEMENTING AI IN SOCIAL COMPUTING SYSTEMS

Researchers have investigated tools and guidelines to enhance users' understanding and designers' consideration of AI in social computing systems. Epstein et al. [3] looked at how presenting explanations increased the effectiveness of human-AI warnings on false content. Lam et al. presented IndieLabel [7], a tool for lay users to audit moderation algorithms by predicting users' perspectives from a small set of user-generated labels of content and using the predicted perspectives to locate potential disagreements between the users and the algorithm. Shen et al. [17] developed Model Card Authoring Toolkit for community members to make a collective decision on adopting an appropriate ML model aligned with community values by supporting the members to be informed and deliberate about the ML models and their tradeoffs. To understand user needs for explainability, Liao et al. [11] developed an algorithm-informed explainable AI (XAI) question bank filled with prototypical questions driven by interviewing UX and design practitioners.

A large body of research has been done to embrace diverse stakeholders' voices to inform the design of AI. Cambre et al. [1] engaged participants in a crowd work platform to speculate about the future of AI voice assistants by completing stories on various everyday settings in 2050, illuminating potential capabilities and concerns with this technology as imagined by the participants. Choi et al. [2] studied creators' perceptions of YouTube algorithms to propose how algorithmic, socioeconomic platforms could be designed to be more creator centered. Seering et al. [16] interviewed moderators across various social media platforms to understand how meaningful communities can be developed, both with and without algorithmic support.

Beyond being informants, another body of work looks at involving stakeholders in the design process of AI-based platforms. WeBuildAI [8] proposed a framework allowing stakeholders in the gig economy to design algorithmic policies and build computational models. Zhang et al. [18] conducted participatory design sessions with drivers to re-design algorithmic management features such as collective driver data sharing. To fight against AI inequality in gig work, Li et al. [10] proposed a bottom-up approach for gig workers about specifying goals, supporting work planning, and sharing data together.

Much has been done to understand the impacts of AI on users and there is a move towards being more mindful in the application of AI. Yet, with social dynamics at play in social computing systems, what further considerations are needed when incorporating AI? To what extent should AI be used? How can the effects of AI be measured and managed?

4 SIG GOALS

This SIG invites sharing and discussions on designing AI-powered social computing systems to provide a space for the CSCW community to reflect on the challenges and opportunities ahead. We aim to connect participants with diverse backgrounds and perspectives to promote a holistic discussion on the societal and technological issues of AI-powered social computing systems. We aim to build a community of interested members and to generate a set of research agendas that will be made publicly available afterward.

5 THEMES

To support and expand the discussions on designing AI-powered social computing systems, the following are themes of the SIG:

- What are the key considerations and challenges in designing AI-powered social computing systems involving stakeholders?

- To what extent should AI be used in social computing systems and what are the intended (or potentially unintended) outcomes?
- What methods are appropriate to assess and address these outcomes?
- How has the advent of generative AI models changed the landscape of social computing systems and what opportunities are there?

6 INTENDED COMMUNITY

The SIG will be relevant to researchers and practitioners of the CSCW community who have an interest in:

- building novel AI-powered social computing systems
- auditing the uses of AI in social computing systems
- examining changes in the social computing landscape with new technological developments

Both experienced members of the community wishing to develop the field further and newcomers seeking to understand the field are welcomed.

7 FORMAT

The SIG will be held in-person with a duration of 75 minutes. To ensure a focused and fruitful discussion, we propose the following plan:

- Introduction (5 minutes): We will start with a brief introduction of the co-organizers and their work related to AI-powered social computing systems and provide an overview of the topic, format, and goals of the SIG. Attendees will introduce themselves via a shared document.
- Breakout Session (15 minutes): We will then conduct small group discussions based on the themes of the SIG and the list of questions we collected from the pre-SIG activity.
- Presentation Preparation (10 minutes): After the discussions, each group will choose a final theme to present and further discuss while working on a shared document to prepare their presentation slide.
- Presentation and Q&A (25 minutes): Each group will have 3 minutes to present their chosen theme and the main points of their discussions with a 2-minute Q&A from the audience. The organizers will note down items that have been discussed several times across the groups.
- Floor Discussion (15 minutes): We will reconvene and discuss the issues that have surfaced and the potential solutions for them.
- Closing (5 minutes): We will close with a summary of the discussions and announce that the materials will be made publicly available. Attendees will be invited to join the Slack workspace to continue their networking and discussions.

We will curate the discussions from the SIG and share them via various channels after the event.

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