Airi Lampinen, Naja Holten Møller, Riyaz Sheikh, Asbjørn Ammitzbøll Flügge, Kristin Kaltenhäuser, Baki Cakici (2022): CSCW and Algorithmic Systems. In: Proceedings of the 20th European Conference on Computer-Supported Cooperative Work: The International Venue on Practice-centred Computing on the Design of Cooperation Technologies - Workshops, Reports of the European Society for Socially Embedded Technologies (ISSN 2510-2591), DOI: 10.48340/ecscw2022_ws03

CSCW and Algorithmic Systems

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Abstract. The European Union announced recently that Europe should be a global hub and leader in the development of Artificial Intelligence (AI) that guarantees safety and fundamental rights (European Commission (2021)). In this workshop, we investigate how we can approach this challenge from the perspective of Computer-Supported Cooperative Work (CSCW). Starting with a general conceptual focus on *algorithmic systems* and their increasing role in society, we are particularly interested in such systems *in* and *as* organisations, and the questions that come up when investigating them as part of complex, cooperative work practices. The full-day workshop, designed for up to 20 participants, advances a CSCW-perspective on algorithmic/AI systems by bringing together researchers within (and where possible beyond) the CSCW community who study algorithmic systems, with the aim of sharing ongoing research and connecting participants with others who share their research interests.

Introduction

The European Union announced recently that Europe should be a global hub and leader in the development of Artificial Intelligence (AI) that guarantees safety and fundamental rights (European Commission (2021)). In this workshop, we

investigate how we can approach this challenge from the perspective of Computer-Supported Cooperative Work (CSCW) – building on the kinds of conceptual insight and methodological approaches that our community is known for. Instead of considering algorithms or data in a narrow technical sense, this workshop focuses on *algorithmic systems* and their increasing role in society: *'It is not the algorithm, narrowly defined, that has sociocultural effects, but algorithmic systems – intricate, dynamic arrangements of people and code. Outside of textbooks, "algorithms" are almost always "algorithmic systems"'* (Seaver (2019), pp. 418–419).

When it comes to the prior study of algorithmic systems, there has been a strong emphasis on widely used commercial platforms, with scholars examining what platform companies do and how platform users relate to them (Bucher (2018), Gillespie (2017), Lee et al. (2015), Rosenblat and Stark (2016)). More recently, increasing attention has been paid to the role algorithmic systems play in the public sector, how they shape civil servants' work practices, and what implications they have for citizens and non-citizens (Flügge et al. (2020); Holten Møller et al. (2020)).

In this workshop, we are particularly interested in algorithmic systems *in* and *as* organisations, and the questions that come up when investigating algorithmic systems as part of complex, cooperative work practices. These are issues where questions for computer science are fundamentally intertwined with those of social science – a combination that is at the heart of the CSCW community's scholarly pursuit. How do we contribute to the kind of society we believe is best suited for human values of participation, agency and accountability? What metaphors – either knowingly or unknowingly – shape how we imagine the future of algorithmic systems in, for example, public services?

The workshop advances a CSCW-perspective on algorithmic/AI systems. As one example, such a perspective can center on showing the boundaries and inadequacies of applying techniques from data science (i.e. ML and NLP) on an "incomplete" dataset and the context and practices that shaped it (Rask Nielsen and Holten Møller (2022)). Another pertinent question is how we can understand the datasets that are necessary for algorithmic systems as a work practice that increasingly involves the citizens of a society. This importantly includes questions on who are considered as "Europeans" and what are the perspectives left out (Cakici et al. (2020)), the non-citizens. Normatively, CSCW is committed to the practitioners – and to the people – that data, algorithms and AI should be useful to. The aim for this workshop is thus to built a shared understanding of what concepts, cases, methods, and historical trajectories can help us advance this body of research and how (if?) we as scholars see ourselves as contributing to the European project with the commitments of a CSCW-perspective.

Workshop themes

The workshop considers what it means to take a CSCW perspective to the study of algorithmic systems with the help of four broad themes. Participants are encourage to articulate their interest in the workshop in connection to one or more of the following:

- **Concepts and metaphors.** Algorithmic systems have been approached with various concepts and metaphors, including but not limited to street-level bureaucracy and street-level algorithms (Alkhatib and Bernstein (2019)), bureaucracy and uncertainty (Pääkkönen et al. (2020)), games and strategic interaction (Haapoja et al. (2020)), and algorithmic power and different conceptions of power. We welcome contributions that examine and/or advance the use of metaphors and concepts in understanding algorithmic systems as a part of society.
- **Empirical cases.** When it comes to empirically oriented contributions, we welcome research focused both on algorithmic systems *in* organisations (changes in work practices, strategic interaction in the workplace, such as efforts at negotiating workflows with and around algorithmic systems, etc.), and algorithmic systems *as* organisations, that is, how algorithmic systems in some cases essentially bring about the workplace by configuring workflows and managing labor (such as in the case of food delivery apps). That said, we are especially interested in research that engages with the public sector.
- **Performativity.** We are also interested in works that draw on theories of performativity (Mol (2002), Law (2004)) and analyse algorithmic systems as methods that participate in the enactment of new realities. In an organisational context, this entails asking questions such as: What kinds of organisations do algorithmic systems bring into being? Or, to what extent do these systems create the very problems they set out to solve? Such questions also lead us to the politics of algorithmic systems, that is, if different systems bring into being different realities, who benefits from the use of these systems, and who suffers the costs?
- **Methodology.** We identify methodology as an area that can help articulate what a CSCW perspective to algorithmic systems could be and where fresh ideas and experience sharing can be valuable to participants. We welcome methodological accounts and reflections, from different types of algorithmic audits to ethnography and research-through-design – and beyond.
- **Historical Trajectories.** While the notion of algorithmic systems is relatively new, the CSCW community has been working on related themes since its inception. Our final theme is an invitation to critique the notion of an algorithmic system (do we really need it?) and/or connect it to longstanding CSCW concepts and research trajectories (workplace technologies, workflow systems, workarounds, ...). In developing the CSCW

perspective to the study of algorithmic systems, we wish to do so from a historically informed standpoint.

Workshop goals

The goals for this workshop include:

- Bring together researchers within (and where possible beyond) the CSCW community who study algorithmic systems, with the aim of sharing ongoing research and connecting participants with others who share their research interests.
- Reflect collectively on what a CSCW perspective can contribute to the study of algorithmic systems and their increasing role in society at large and in organizations in particular.
- Facilitate in-depth conversations about research during the event, while also seeking to support and scaffold collaborative efforts that exceed the short duration of the workshop.
- Discuss how participants could (and already do) collaborate not just with other researchers but also with practitioners, civic servants, journalists, and other relevant stakeholders.
- Facilitate the formation of this sub-community in CSCW and HCI, and discuss possibilities for a lightweight collaborative infrastructure to sustain it (e.g., a listserv or a wiki page for resources).

Workshop activities

The workshop is structured as a full-day event. The workshop will consist of diverse activities, with an emphasis on in-depth conversations and community building:

- **Introductions.** The organisers open the workshop by introducing the agenda and goals for the day. They then facilitate a round of meet-and-greet, giving each participant a moment to introduce themselves and their interest in the topic.
- **Panel discussions.** The participants will be organised into thematic panels based on their position papers. Everyone will give a 6-minute presentation, followed by a collective discussion. The organisers will take shared notes to generate material to be worked on collaboratively.
- **Walk-and-Talk in Break-Out Groups.** Participants will split into groups of 3-4 people to further explore shared interests. The recommendation is to discuss while taking a walk, if that is feasible and desirable to everyone in the group. For this activity, groups will be encouraged to focus their conversation in particular on methodological issues. The goal is to identify key ideas and questions for discussion.

- **Summarising.** In this session, participants will be given a moment to review the collective notes taken during the day and to note down key insights and reflections. We will then go around the room so as to listen and respond to each others' thoughts.
- **Next Steps and Closing.** The workshop will conclude with a shorter discussion around possible next steps to advance CSCW research on algorithmic systems and to consider opportunities for further collaboration.

Participant recruitment and selection

The workshop is planned for a maximum of 20 participants (including the organisers). Participants will be recruited from the CSCW and CHI communities, and from the extended research networks of the organisers. Detailed information about the workshop will be made available at our workshop website. We will reach out to international, interdisciplinary networks by circulating the call on relevant listservs (EUSSET, AoIR, etc.) and through social media.

Those interested in the workshop will be invited to submit a short position paper (or equivalent material) that addresses the workshop themes. We encourage potential participants to discuss their interest in the themes, welcoming reports of (preliminary) empirical results, theoretically oriented pieces, as well as methodological reflections. To promote broader participation, in particular from the industry and civic organizations, we offer the option of submitting alternative material of rough equivalence (e.g., a design portfolio, white paper, or similar). Submissions will be reviewed by the organisers and accepted based on the relevance and development of their chosen topic, as well as participants' potential to contribute to the workshop.

Equipment needs

The workshop has no equipment needs beyond the usual: a room to host the event, wireless network connectivity, and a projector. Some supplies for group work, such as post-it notes, flipboard-sized paper, and pens, would be helpful.

Organisers

The workshop is organised by a group of scholars with significant experience in the study of algorithmic systems and a longstanding engagement with the CSCW community:

Airi Lampinen is an Associate Professor in Human–Computer Interaction at Stockholm University, Sweden, and a Docent in Social Psychology at the University of Helsinki, Finland. She holds a PhD in social psychology from University of Helsinki, Finland. Lampinen currently runs the Kone Foundation

funded project *Algorithmic systems, power, and social interaction*, and leads the NOS-HS workshop series *Nordic Perspercctives on Algorithmic Systems: Concepts, Methods, and Interventions*.

Naja Holten Møller is an Assistant Professor in the Software, Data, People & Society section, Department of Computer Science, at University of Copenhagen – and the founder of the Confronting Data Co-Lab (www.confrontingdata.dk). She holds a PhD in Computer-Supported Cooperative Work from the IT University of Copenhagen, Denmark. Møller is currently a co-investigator in the *Public Administration and Computational Transparency in Algorithms (PACTA)* research project as well as the *Data for Asylum Legal Landscaping (DATA4ALL)* research project.

Riyaz Sheikh is a PhD student at the Department of Computer and System Sciences, Stockholm University. An HCI design researcher interested in probing the intelligent algorithmic authorities behind conventional and emerging technologies, he intends to design for socially asymmetric and pluralist societies. Sheikh has a background in computer science and holds a Master's degree in Interaction Design from Industrial Design Centre, IIT Bombay.

Asbjørn Ammitzbøll Flügge is a PhD student in the Software, Data, People & Society section, Department of Computer Science, at University of Copenhagen. From a CSCW-perspective he studies how cooperative work in public services is affected and changes through the implementation and use algorithms and AI for decision support. With a focus on transparency, he investigates how caseworkers in job placement use profiling algorithms in their daily work. Flügge has a background social science and holds a Master's degree in Digital Innovation and Management from the IT University in Copenhagen.

Kristin Kaltenhäuser is a PhD fellow in the Software, Data, People & Society section, Department of Computer Science, at the University of Copenhagen. Drawing on participatory design and data science methods, her research evolves around grounded sense-making of data in asylum decision-making in the Nordic countries. She has a MSc in Software Development and a MA in Intercultural Communication with a focus on Gender Studies.

Baki Cakici is an Associate Professor in the Technologies in Practice research group at the IT University of Copenhagen, Denmark. He holds a PhD in Computer and Systems Sciences from Stockholm University. In his research, he draws on theories from the field of Science and Technology Studies. Cakici's research interests include surveillance, politics of numbers, digital state infrastructures, and the history of computing.

Acknowledgments

This work has been supported by Swedish Research Council grant number 2017-05382–3 as well as the Kone Foundation project *Algorithmic Systems, Power and Interaction*. The proposal builds, in part, on ideas discussed during the NOS-HS workshop series *Nordic Perspectives on Algorithmic Systems*.

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