

## Title

**Automation and the next wave of computerisation: Sociotechnical approaches to automation, robots, machine learning and artificial intelligence**

## Organizers

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## Abstract

While computerisation has taken place for decades, we are seeing increased rhetoric and activity across many domains in the areas of automation, robotics, artificial intelligence, and machine learning. Recent innovations around automated replacements for human work promise to change the ways people organize society and to reshape our working lives, for good or for ill. It is crucial that sociotechnical scholars engage with automation if we are to go beyond the easy rhetoric surrounding the most recent rise of automated technologies. This half-day workshop (to follow a morning CSST workshop on introductory ideas and approaches to sociotechnical research) brings together sociotechnical scholars, developers, engineers, makers, and other stakeholders to unpack the reality and rhetoric of automation and related technologies. This workshop will provide a forum for (1) understanding and approaching automation and related phenomena from a sociotechnical perspective; (2) discussion of methods and techniques for studying and analysing these phenomena; and (3) sharing empirical research.

## Description

Progress made in mobile robotics, machine learning, natural language processing, and machine vision, coupled with the availability of large data sets and ubiquity of sensors have captured scholars interests in understanding the impact these technologies will have on work and society. One study using data from the U.S. Department of Labor found that 47 percent of the U.S. workforce is at risk of routine task automation in the next two decades (Frey & Osborne, 2013). Other reports have shown similar results concluding 38 percent automation in the US economy over 15 years and 30 percent in the UK, 35% in Germany, and 21% in Japan (*UK Economic Outlook*, 2017).

There is a litany of recently published popular books and expert opinion on the transformative impact of these technologies will have on society and work. These range from dystopian visions of mass unemployment as robots replace workers (Ford, 2016), to more utopianist futures where robots and artificial intelligence will perform tasks better and more safely than expert professionals ever could with society better off for it (Susskind & Susskind, 2017). However, in this workshop we will explore the notion that one possible future of work will involve people performing non-routine tasks and careers that rely on social, emotional, and creative skills. In this possible future, people will work alongside complex systems of automation and decision making (Brynjolfsson & McAfee, 2014). Most important to understanding this phenomenon of automation, artificial intelligence, and the future of work is accepting that futures and technologies are fundamentally social (Wajcman, 2017).

Automation and related technologies are of immediate interest to scholars in the areas of sociotechnical research, science and technology studies, infrastructure studies, computer supported cooperative work, human-computer interaction, and other attendees of the iConference who are equipped to engage with the social futures and technologies under discussion at this workshop. We

also want to highlight the importance of diverse attendance at this workshop and extend an invitation not only to traditional scholars but to the developers, engineers, creators, and makers of these technologies and related areas. While automation has been in use since the industrial revolution, this new wave of automation in highly skilled work and knowledge work appears to be advancing at speed. This kind of automation demands the involvement of communities that attend the iConference community due to their focus on information and society in tandem with technology creators and tinkerers to understand the complexities and specifics, both social and technical. With the shared approach that, as Suchman reminds us, the magic and technical wonder of these systems often comes from the masking of social actors and social labor (Suchman, 2007).

This workshop is the second part of a two part series. The first half-day CSST workshop will introduce and ground attendees in essential sociotechnical concepts and research. This second half-day workshop will provide a focus on a specific focused area (automation) and will involve a series of empirical studies in the field with which to apply the sociotechnical perspective. The proposed format of this workshop is to convene scholars, makers, designers, and engineers with an interest in the topic along with researchers currently conducting related research and development; all will be asked to write a short position paper (500 words). The position paper should address the prospective attendees' interest in the workshop and contain a narrative about current research or experience they have in the topic of interest to the workshop. The position paper will be advertised with additional details via a workshop specific conference website that will be updated as the workshop comes to fruition. Position papers will be used for short presentations and introductions at the start of the workshop. We will select 2-4 of the prospective position papers that form a theme and put together an opening panel. Readings for this panel will be sent out to workshop attendees ahead of time and the authors notified so they can arrive prepared. This panel will make for focused discussion and a primary part of the workshop. After participant introductions, presentations, and the topic panel, we will arrange participants in small groups and provide brainstorming prompts to generate discussion and provide groups with large writing surfaces and markers to capture these ideas and use for a later blog post on the workshop website. The nature of the discussion will focus on methods, emerging and important domains of automation, robotics, and artificial intelligence, ideas for a research agenda, opportunities for development, and ideas that emerge from the panel discussion.

The goals of the workshop are to produce three main outcomes. First, to discuss and detail emerging concepts, problems, methods, and research trajectories in the sociotechnical understanding of automation. Second, the results of the workshop will be featured in a blog post for the sociotech.net website and cross posted on the Oxford Internet Institute blog. Third, participants will have ample opportunities to network and create potential collaborations in this area.

## Duration

Half-day event.

## Attendance

We anticipate the interest and related work being performed in this area would draw between 15 and 25 participants. Maximum 30.

## Special Requirements

None.

## References

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