

Title:

Smart Hand Tools: Leveraging AI to Empower Blue-Collar Workers

Type:

Workshop

Organizers:

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Abstract:

How can construction, manufacturing, and maintenance workers benefit from advances in AI? All too often, AI is adopted as a mechanism for reducing the blue-collar workforce, with robotics and automation replacing human workers. The purpose of this workshop is to identify researchers with shared interests in smart hand tools, and to engage iSchool researchers in thinking about this research direction. The general themes that our workshop will explore will be expanding workers' agency and empowerment, improving workers' safety and sense of fulfillment, promoting accessibility and broadening workforce participation, and incentivizing adoption and improving productivity. The Smart Hand Tools project is one of six six-year core research projects that make up Good Systems, a UT Grand Challenge. At this interactive workshop, you will be able to learn more about this newly launched research project and explore potential intersections between your research interests and the emerging research area of smart hand tools.

Description:

As AI becomes more fully embedded in our decision-making and work processes, it becomes vital to understand how AI-based systems can be built to have positive impacts on work practice and in individuals' lives. AI and automation do not inherently need to replace workers; rather, augmentative AI can be built to empower workers, increase worker agency, and protect their safety. Smart hand tools – AI-enabled hand tools that assist, rather than replace, workers – are one such means by which the human worker can be moved 'to the center'. In this workshop, we will consider the physical, handheld, smart tool as a means of worker empowerment and a locus of future AI development. We will consider the dynamics of smart hand tools as potentially creating productive, iterative, feedback loops that enable self-reflection and refinement of work processes, and a means by which workplaces may become safer, more efficient, spaces where expertise is more rapidly shared and developed.

The purpose of this workshop is to identify researchers with shared interests in smart hand tools, and to engage iSchool researchers in thinking about this research direction. The general themes that our workshop will explore will be expanding workers' agency and empowerment, improving workers' safety and sense of fulfillment, promoting accessibility and broadening workforce participation, and incentivizing adoption and improving productivity. We will investigate how smart hand tools will empower workers and augment their agency by leading to enhanced satisfaction, productivity, performance, and improved collaboration. We will explore how smart hand tools can safeguard workers' wellbeing, in terms of avoiding accidents, repetitive stress injuries, and stress. We will also explore the path for widespread adoption of smart hand tools through identifying benefits to companies and managers.

We will begin the workshop with presentations about smart hand tools, including discussing the broader literature to date and recent research from our six-year core research project that is part of Good Systems, a UT Grand Challenge. We will then engage in a combination of breakout and plenary brainstorming activities and discussions to explore the space of smart hand tools and exchange ideas. We will ask participants to work in groups to envision an application for a smart hand tool, and the group will then think through the process of defining, building, and evaluating this smart hand tool, including discussion of the relevant stakeholders and how they will be engaged, the process for designing the smart hand tool, and determining what success would look like. We will share these ideas and identify common themes that connect our smart hand tool concepts, which can help the iSchools community to map out the opportunities in this research space.

We seek to recruit an interdisciplinary group of 20–40 participants. Workshop organizers will publicize the workshop on relevant listservs and social media accounts, as well as through their professional networks. The interdisciplinarity of the organizing team ensures that this approach will reach a broad, interdisciplinary group of potential participants, potentially expanding the range of disciplines represented at the iConference.

We have three major goals for this workshop:

1. Develop an agenda for smart hand tools research
2. Empower a growing community of researchers with the tools, perspectives, and community necessary to develop an innovate research program in smart tools
3. Generate new social connections and a more developed outlook on smart hand tools research

The main outcome of this workshop will be to seed cross- and interdisciplinary collaborations around topics of relevance to smart hand tools and encourage participants to consider the breadth of potential research approaches and applications available to them within these collaborations.

To our knowledge, this will be the first iConference event to focus on smart hand tools. We believe that this emerging topic will engage the iSchool audience and promote new discussions and collaborations.

Duration:

This event will be held during a single iConference session of 1.5 hours.

Special Requirements:

None