

Title: *PDW: Work in the Age of Intelligent Machines: Towards Disciplinary Convergence*

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Abstract: The Professional Development Workshop (PDW) *Work in the Age of Intelligent Machines: Towards Disciplinary Convergence* was held at the Academy of Management Annual Meeting on 11 August 2018 in Chicago, USA. The PDW explored ways in which human work and occupations will be changed as artificial intelligence becomes more increasingly prevalent in the workplace. The PDW was a part of a series of workshops funded by a National Science Foundation (NSF) convergence grant on the future of work. A range of academic, industry, and government participants engaged in collective identification of key research questions which merit further study.

Body of the Report:

Artificial intelligence and machine learning are becoming increasingly prevalent in the workplace. While much media and academic attention has focused on forecasts of the displacement of workers, less attention has focused on ways AI might change the nature of work, and in particular ways AI might generate new jobs or mitigate the displacement of workers.

The PDW was part of a series of workshops supported by a National Science Foundation sponsored Research Coordination Network on *Work in the Age of Intelligent Machines* (<http://waim.network>, grant 17-45463). It brought together more than 50 researchers from academia, government and industry to address the future of work by identifying key research questions on the topic which merit further study.

The PDW started with a keynote address from Debaleena Chattopadhyay, Department of Computer Science, University of Illinois—Chicago on the topic *Virtual Characters in Health-Related Assessments and Interventions: Some Sociotechnical Implications*. The goal of the keynote was to provide a common example of an application of AI (a virtual character, i.e., an animated human figure capable of natural language spoken dialogue) to ground the following discussions.

PDW participants then worked individually in a shared document to brainstorm possible research questions (the document is available at <http://waim.network/AOMPDW18>). These questions were grouped into a number of higher-level themes: design and impacts of virtual characters in particular; approaches for translating what we know about work into system design; impacts on individual workers, team processes and design, work practices, jobs and careers, education, organizations and society; division of labour in developing systems; legal, policy, critical and ethical questions; and questions about research methodology.

A sampling of proposed research questions across these topics includes:

- How will AI systems change interpersonal relationships at work?

- What happens to creativity in the workplace with such systems?
- What are the implications for power and control?
- What roles in teams could be effectively filled by an intelligent system?
- Which industries will be most affected?
- If systems can perform entry-level work, what positions will be available for humans entering a profession? How will newcomers learn the necessary skills?
- How is work on intelligent systems being funded and performed, and what are the implications of this for work involving these systems? Who decides what is automated and what assumptions drive these decisions?
- How can systems be monitored for errors?
- Who is accountable for errors made by an AI system?
- What are the implications of increased system capabilities for needed or valued human skills?

The brainstorming exercise was followed by small group discussions of a few of these themes: impact of technology on work systems; impact on individual workers; jobs/careers and education; implications for system development and deployment; and system design.

Overall, the PDW on *Work in the Age of Intelligent Machines* raised a variety of important questions that necessitate further research, so that we may be proactive in addressing human work and occupational changes as AI becomes increasingly ubiquitous in the workplace. As part of a series of NSF workshops on the future of work, the community can expect these ideas to be further discussed and explored in other community events.

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