5105.0 - You vs. the robot factory: some principles for understanding AI hazards in the workplace

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Program: Occupational Health and Safety

Session: Chemicals to Robots: Assessing and Addressing Occupational Hazards

Abstract

Problem. As systems enabled by AI become increasingly introduced into the workplace, OSH practitioners and researchers must be prepared to consider their effects on worker health and safety. Yet, OSH research into AI is now in its infancy. A science of “algorithmic hygiene” is needed that explicitly links algorithmic system characteristics to health and safety outcomes, to guide research questions and provide a scientific basis for practical, actionable guidance for individual end-users, developers, and policymakers.

Strategies. While AI may at first seem radically different from other potentially hazardous aspects of the workplace, it can be understood using established OSH principles. A framework was devised that identifies several core characteristics of algorithmic systems and links them to existing, well-known categories of occupational hazards and controls. Key points of the framework include:
- The terminology “trained algorithm” is better than “artificial intelligence” because it is a practical description of a specific process.
- Because algorithms are software with no physical substance, they can mediate but not directly create any physical, chemical, or biological hazards, although they can directly create psychosocial hazards.
- Established, familiar OSH exposure assessment methods can still be used even without AI subject matter expertise.
- Hazard controls are divided between work-design controls carried out within the end-user organization, and software-design controls applied by the software developers who may be in a separate vendor firm.

Impact and implications. Although people might not initially think to ask an OSH professional about AI safety, their broad presence throughout all industrial sectors provides an opportunity for significant impact through educating workplace end-

users of AI-enabled systems about their health and safety effects. This would allow end-users to improve their own practices, as well as request that software vendors consider health and safety impacts in their software design, without requiring any wait for formal regulatory action.

Presenter

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John Sadowski

Learning Areas

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