

Center for Human, Artificial Intelligence,
and Robot Teaming



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CHART Speaker Series

Join us for a presentation by:

Dr. Shiva Pooladvand, Assistant Professor at the School of Sustainable Engineering and the Built Environment at Arizona State University

Balancing Complexity, and Safety: Effects of External Stressors and Technological Integration on Construction Workers' Safety Performance Considering Human Factors



Fri. Nov 15, 2024

1:30 – 2:15pm AZ Talk
2:15 -2:30pm AZ Q&A

[Register for Zoom Here](#)

In Person: SANCA 151;
Polytechnic Campus

Abstract:

Working within one of the most stressful industries, construction workers face intensive stress that adversely affects their safety and productivity. Such a high-risk and stressful occupation exposes workers to various mental and physical stressors that can lead to severe injuries and even death. Various external stressors, such as task-related, environmental, and social stressors, can affect different levels of situational awareness, and increase human errors. On the other hand, this sector has witnessed significant technological advancements in recent years by leveraging robotics, and artificial intelligence (AI) which if not properly designed and implemented, could exacerbate workers' stress and increase potential errors. This talk first draws on examples from research studies to highlight theoretical foundations and empirical evidence of changes in workers' decision dynamics, situational awareness, and performance when exposed to different stressors originating from the work environment and later it elaborates on human-machine interaction. The significant contributions of these studies will be discussed in terms of their translational impacts, particularly regarding the importance of human-centered design and how the construction industry should approach technology and AI integration while maintaining controls to keep workers in the loop and ensure their safety.

Bio:

Shiva Pooladvand is an Assistant Professor at the School of Sustainable Engineering and the Built Environment at Arizona State University. She earned her Ph.D. in Civil Engineering from Purdue University. Her interdisciplinary research lies at the intersection of civil engineering, cognitive psychology, human behavioral science, and computer science to advance smart construction safety. Her work focuses on incorporating intelligent human-machine interaction, immersive environments (VR/AR/MR/AV), sensing technologies, artificial intelligence (AI), and human factors to advance automation, safety, and productivity within complex construction workplaces.