WPI | Biomedical Engineering

Seminar Series

Monday, November 16, 2026
Gateway 1002

12:00–12:50 PM

"From Medical and Manufacturing Innovation to Human-Centered Convergence Research"



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Abstract: With the goal of advancing engineering science and technology to enhance healthcare, I conduct convergence research through transdisciplinary collaboration across engineering, science, and medicine. By integrating advanced manufacturing, robotics, machine learning, sensing, and translational medicine, my work seeks to improve the safety, quality, efficiency, and accessibility of healthcare services and research. With deeper integration of advanced technologies and broader clinical applications, my research has evolved through three key themes: 1) Medical and Manufacturing Innovation, 2) Smart Health, and 3) Human-Centered Convergence Research. In this talk, I will introduce each theme with illustrative projects. In Medical and Manufacturing Innovation, I will discuss a novel research philosophy and framework based on a hospital-factory analogy, with examples of medical device development for human tissue machining. In Smart Health, I will demonstrate how recent advancements in artificial intelligence are enabling real-time, data-driven, clinical decision-making and autonomous medical robotics. Finally, in Human-Centered Convergence Research, I will share my vision for transdisciplinary learning and transfer of human manual skills for workforce development and robotic automation.

Bio: Yihao Zheng is an Associate Professor in Mechanical and Materials Engineering at Worcester Polytechnic Institute (WPI), with affiliations in Biomedical Engineering and Robotics Engineering. Before joining WPI in 2019, he was a Research Investigator in Mechanical Engineering and Internal Medicine at the University of Michigan (UM) and a Collaborative Investigator at the VA Ann Arbor Healthcare System. He received his Ph.D. in Mechanical Engineering from UM in 2016. Dr. Zheng's research focuses on enhancing healthcare through the integration of advanced engineering technologies and transdisciplinary collaborations with medical schools and industry partners. His research contributes to both fundamental science and clinical applications and has been funded by the National Science Foundation, National Institutes of Health, Department of Veterans Affairs, medical device companies, and charity foundations. He has published 50 peer-reviewed journal articles and holds four granted and four pending patents.