



MECHANICAL & MATERIAL COLLOQUIUM

A Tool, A Teammate, A Coach: Human+AI Collaboration in Engineering and Design

by Christopher McComb (Carnegie Mellon University)

Increasingly powerful artificial intelligence (AI) resources are accelerating the pace of engineering and design. At the same time, interacting with these AI resources stands to fundamentally change the way that we, as humans, create solutions to challenging engineering problems. This seminar will explore cutting edge research at the intersection of the products we create, the AI systems that we use, and the teams that we work with. The beginning the talk will examine AI-driven approaches to design synthesis, and explore how such AI tools change human approaches to design. This will motivate the application of AI models within teams and organizations as a teammate or coach, with results from several large team-based experiments. The end of the talk will identify research needs for the continued development of AI Engineering, Design for AI, and other emerging concepts.

Dr. Christopher McComb is the Gerard G. Elia Associate Professor in Carnegie Mellon University's Department of Mechanical Engineering. He is also affiliate faculty in the NextManufacturing Center and Manufacturing Futures Institute. His lab, the Design Research Collective, advances interdisciplinary design research by merging perspectives from engineering, manufacturing, psychology, and computer science.

He also serves as the Director of the Human+AI Design Initiative, an interdisciplinary and international group of researchers focused on application of human-AI collaboration to design. His research interests include human social systems in design and



engineering; machine learning for engineering design; human-AI collaboration and teaming; computation for advanced manufacturing; and STEM education; with funding from NSF, DARPA, and private corporations. He received dual B.S. degrees in civil and mechanical engineering from California State University-Fresno. He later attended Carnegie Mellon University as a National Science Foundation Graduate Research Fellow, where he obtained his M.S. and Ph.D. in mechanical engineering.

Place:
EC 1114

Time:
2:00-3:15PM

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