SYE Distinguished Seminar

Department of Systems Engineering
香港城市大學
City University of Hong Kong

ARTIFICIAL INTELLIGENCE IN CYBER MANUFACTURING

Cyber manufacturing services, which aim to connect geographically distributed designers and manufacturing service providers via the internet, are emerging to offer tremendous efficiencies and increasing mass individualization. Recent advances in machine learning enable new automation capabilities to achieve efficiencies in cyber manufacturing. In this talk, I summarize machine learning methods that facilitate cyber manufacturing services in the areas of manufacturing planning and design for manufacturing (DFM). To enable automated manufacturing planning, we review recent advances in manufacturing capability modeling, manufacturing process selection, and feature recognition for process planning. To facilitate design for manufacturing, data-driven tools for generative design are reviewed and new methods and results presented. We summarize work from our research group, present some new methods and results in the DFM area, and put this work in the context of the research literature. Critical research challenges are provided to set the stage for future research directions. I also briefly report on my other research activities.

David Rosen is a Principal Scientist at the Institute for High Performance Computing and the Singapore Institute for Manufacturing Technology, both A*STAR institutes in Singapore. He was a Professor in the School of Mechanical Engineering at the Georgia Institute of Technology for many years. Additionally, he held faculty and research positions at the Singapore University of Technology & Design. He received his Ph.D. at the University of Massachusetts in mechanical engineering. His research interests include computer-aided design, additive manufacturing (AM), and design methodology, with a specific interest in design for additive manufacturing. He is a Fellow of ASME. Also, he is the recipient of the 2013 Solid Freeform Fabrication Symposium, International Freeform and Additive Manufacturing Excellence (FAME) Award and is a co-author of a leading textbook on AM. In the standards community, he chairs the ASTM F42 subcommittee on design for additive manufacturing and was awarded the ASTM Award of Merit and promoted to Fellow of ASTM.

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26 March, 2025 (Wed)

10:30am - 11:30am

LT-15
Yeung Kin Man Academic Building
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All are welcome