

## ECE & MIE JOINT SEMINAR

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### **Control Techniques for Emerging Demands in Robotic Manufacturing**

***Cong Wang***

***PhD Mechanical Engineering***

***University of California, Berkeley***

Date: Monday, Feb 9, 2015

Time: 2 to 3 pm

Location: GITC 3710

#### ABSTRACT

Robotics is playing an important role in the new era of manufacturing industry. This seminar will examine some of the emerging demands in robotic manufacturing from the perspective of control engineering. Mobile manipulation, human-robot collaboration, and robotic IC fabrication are three of the most discussed topics in the current development of robotic manufacturing. Emerging demands in these areas are driven by major market trends such as the renaissance of auto economy and the boom of smart devices. The demanding industrial requirements in the implementations bring many control challenges such as real-time control under limited feedback capability, teaching robots through demonstration, stabilization and vibration suppression of complex systems, and impedance control of non-back-drivable mechanisms. In regard to these challenges, this seminar will discuss some corresponding control techniques, including statistical prediction, nonparametric learning, kinematic controller synthesis, direct vibration cancellation, and robust multi-objective controller tuning.

Bio: Dr. Cong Wang is a researcher and lecturer at UC Berkeley. Before completing his PhD study in Mechanical Engineering at UC Berkeley in 2014, he obtained his master's degree in Automotive Engineering and bachelor's degree in Automation and Manufacturing from Tsinghua University in 2010 and 2008 respectively. His research interests include controls, dynamic systems, and robotics, with a current focus on data-driven approaches for complex robotic systems.

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