

# Robotics and Cyber-Physical Systems

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## Special Sessions on Robotics and CPS at Int'l Conf. on Robotics and Intelligent Systems (IROS) 2008

- Session 1: 13:30 – 15:30
  - M. Branicky (NSF/CNS)
  - J. Hollerbach (Utah)
  - V. Kumar (UPenn)
  - G. Sukhatme (USC)
  - G. Gordon (CMU)
  - C. Hauser (Stanford)
  - Q&A
- Session 2: 15:50 – 17:50
  - M. Branicky (NSF/CNS)
  - Peter Allen (Columbia)
  - Daniela Rus (MIT)
  - Takeo Kanade (CMU)
  - C. Jenkins (Brown)
  - R. Murphy (TAMU)
  - Q&A

## Questions

- How do robotic systems relate to CPS?
- What research in CPS could lead to dramatic advances in robotics?
- What theories and methods of robotics could be extended into the broader domain of CPS?
- The close relationship of robotics systems and CPS makes the above questions not so black and white.

## More Questions

- What are the analogs to deadlock and other concurrent programming issues in robotics?
- Do we need a unified modeling framework for CPS? POMDPs? Markov Random Fields?
- Is machine learning crucial to the future of robotics and the success of the CPS program?

## More Questions

- Formal methods are not used widely in robotics. Why?
- Can we develop new measures of correctness for robotic systems that incorporate physical interactions?
- Can we develop new theories and design methods that work with these new measures correctness?
- Can we develop a design process that guarantees correctness by construction? Perhaps based on correctness of composable components?