Panel: Human-Machine Interfaces for Smart PHM

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Robotic Systems for Smart Manufacturing
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Personal Background

- B.S., Computer Engineering
  The George Washington University
- M.S., Electrical Engineering (Robotics)
  Georgia Institute of Technology
- Electrical Engineer, Collaborative Robotics Laboratory, National Institute of Standards and Technology

What is NIST?

- Part of the Department of Commerce
- Research to assist US-based industries
- Performs measurement science across physics, chemistry, engineering, materials, nanotechnology, IT, etc.

Research Area

- Human-Robot Interaction
  - subset of HMI
- Manufacturing applications
- New types of interfaces
  - Tablet applications
  - Augmented Reality devices
  - Other wearable sensors

Research Goals

- Evaluate which existing metrics are most useful in a manufacturing context
- Develop metrics to better evaluate human-robot interaction
  - Less reliance on subjective measures
- Identify which types of interfaces are more suited for specific tasks or situations

How do we evaluate HMI?

- What makes an interface effective?
- User Studies
  - Obtain feedback from novice end-users
- Performance Metrics
  - Subjective vs Objective measures
  - Task-specific vs task-agnostic

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