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# **Trust-Based Control of Robotic Manipulators in Human-Robot Collaborative Assembly**

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**Systems & Controls  
Seminar**

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**Abstract:** The recent emergence of safe, lightweight, and human-friendly robots has opened a new realm for human-robot collaboration (HRC) in collaborative manufacturing. For such robots with the new human-robot interaction (HRI) functionalities to interact closely and effectively with a human coworker, new HRI-based control criteria that integrate both physical and social interaction are demanded. Social human-robot interaction has been demonstrated in robots with affective abilities in education, social services, healthcare, and entertainment. Nonetheless, sHRI should not be limited only to those areas. Human trust in robot and robot anthropomorphic features may have high impacts on HRI. Human to robot trust is one of the key factors in HRI and a prerequisite for effective HRC. Trust characterizes the reliance and tendency of human in using robots. Factors within a robotic system (e.g. performance, reliability, or attribute), the task, and the surrounding environment can all impact the trust dynamically. Over-reliance or under-reliance might occur due to improper trust, which results in poor team collaboration, and hence higher task load and lower overall task performance. This presentation summarises intelligent control frameworks for the manipulator robots that integrate both physical and social HRI factors in the collaborative manufacturing.



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