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## RESEARCH FOCUS ON DR. YUE "SOPHIE" WANG

Dr. Yue "Sophie" Wang of Clemson University is working in the field of human-robot collaboration with applications in assembly in manufacturing, mobile robots and sensor networks. In 2015, she received an \$500,000 NSF CAREER award on Cooperative Control and Decision-Making for Human-Agent Collaborative Teams. In this project, an integrated research and education roadmap is outlined for advances in the control and decision-making approaches of human-agent collaborative teams. In the Interdisciplinary and Intelligent Research (I2R) laboratory led by Dr. Wang, you can always see a lightweight flexible manufacturing robot working together with a student for assembly tasks, or students remotely fly an unmanned aerial vehicle to follow the trajectory of an unmanned ground mobile robot.

This project seeks to foster a new interface between control theory and human factors to improve agent performance and

### PROJECT TITLE

NSF CAREER: Cooperative Control and Decision-Making for Human-Agent Collaborative Teams

### AIM

Integrate techniques from control theory and human factors to create a new research area on the cooperative control and decision-making in human-agent collaborative teams.

### AWARD ABSTRACT

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1454139](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1454139)

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user acceptance while reducing human perceived workload in real-time robotic operations. The research plan is consisted of two major thrusts. The first thrust is trust-based cooperative control of human-agent teams. This thrust addresses key issues including new dynamic models for human performance, agent performance, trust based on existing qualitative results from human factors research, and novel trust-based control strategies for the switched human-agent dynamics under manual and autonomous modes. The second thrust is regret-based decision-making under uncertainty for autonomy allocation in human-agent teams. This thrust reconciles the dominant view in optimal decision-making framework and actual human behavior during decision-making in human-agent collaborative search tasks.

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