



<b>TOPIC</b>	<b>Achieve Complex Missions through Human-robot Collaboration in Dynamic and Uncertain Environments</b>
<b>ORGANIZERS</b>	Student Leadership Council and Faculty of ACIT Institute and TECHLAV Center
<b>AREA</b>	Human-robot collaboration
<b>SPEAKER</b>	Hai Lin
<b>DATE</b>	Friday January 13, 2017
<b>TIME</b>	3:00 – 4:00 P.M. (EST)
<b>VENUE</b>	Fort IRC 410, North Carolina A&T State University, UTSA and SIPI will be joining through video-conferencing
<b>FEES</b>	No Charge

## SYNOPSIS

Human-Robot Collaboration (HRC) studies how to achieve effective collaborations between human and robots so to synthetically combine the strengths from human and robots. While robots have advantages in handling repeated routine work with high precision and long endurance, human beings are much more adaptive and flexible to changing factors or even unexpected situations that are highly non-trivial for robots to overcome. Hence, recent years have seen HRC emerged as a rapidly growing research area with a wide spectrum of applications, ranging from teaching assistant robots in schools, nursing robots in hospitals, to deep-sea and out-space explorations. Although significant progress has been made in human-aware robotic mechanical/interface design, control architectures, collision avoidance and motion planning, very few results exist on the high-level mission planning in HRC. Hence, we are motivated to derive a provably-correct HRC formal design theory that can guarantee the accomplishment of high-level complex missions in safety-critical scenarios. In this talk, we will briefly report our recent progresses towards this goal. Particularly, we will talk about our recent work on the data-driven human modeling, high-level mission planning and integrated task and motion planning in HRC.

## ABOUT THE SPEAKER



Hai Lin is currently an associate professor at the Department of Electrical Engineering, University of Notre Dame, where he got his Ph.D. in 2005. Before returning to his alma mater, Hai was working as an assistant professor in the National University of Singapore from 2006 to 2011. Dr. Lin's teaching and research interests are in the multidisciplinary study of the problems at the intersections of control, communication, computation, machine learning and computational verification. His current research thrust is on cyber-physical systems, multi-robot cooperative tasking, and human-machine collaboration. Hai has served on several committees and editorial boards, including IEEE Transactions on Automatic Control. He is currently serving as the Chair for the IEEE CSS Technical Committee on Discrete Event Systems. He served as the Program Chair for IEEE ICCA 2011, IEEE CIS 2011 and the Chair for IEEE Systems, Man and Cybernetics Singapore Chapter for 2009 and 2010. He is a senior member of IEEE and a recipient of 2013 NSF CAREER award.