The Department of Electrical and Computer Engineering Presents

Faculty Candidate:

Tariq Iqbal

Toward Fluent Collaboration In Human-Robot Teams

Abstract

Robots currently have the capacity to help people in several fields, including health care, assisted living, and manufacturing, where the robots must share physical space and actively interact with people in teams. The performance of these teams depends upon how fluently all team members can jointly perform their tasks. In order to successfully act within a group, a robot requires the ability to monitor other members' actions, model interaction dynamics, anticipate future actions, and adapt its own plans accordingly. To achieve that, I develop human-team inspired algorithms for robots to fluently coordinate and collaborate with people in complex, real-world environments by modeling how people interact among themselves in teams and by utilizing that knowledge to inform robots' actions.

In this talk, I will present algorithms to measure the degree of coordination in groups and approaches to extend these understandings by robots to enable fluent collaboration with people. I will first describe a non-linear method to measure group coordination, which takes multiple types of discrete, task-level events into consideration. Building on this method, I will present two anticipation algorithms to predict the timings of future actions in teams. Finally, I will describe a fast online activity segmentation algorithm which enables fluent human-robot collaboration.

Biography

Tariq Iqbal is a postdoctoral associate in the Interactive Robotics Group at MIT. He received his Ph.D. from the University of California San Diego, where he was a member of the Contextual Robotics Institute and the Healthcare Robotics Lab. His research focuses on developing algorithms for robots to solve problems in complex, real-world environments, which enable robots to perceive, anticipate, adapt, and fluently collaborate with people in teams.

March 8, 2019
WCH205/206

Seminar: 11:10 A.M. - 12:00 P.M.
*** Vision Talk: 12:00 P.M. - 12:30 P.M.**
*Faculty Only