

Two HRI Talks this Week! (One today at noon!)

by [Daniel Szafir](#) - Monday, February 20, 2017, 10:22 AM

Hi Class,

This week we have two different HRI researchers visiting campus and giving public lectures, the first of which is today at noon! Please attend these if you can, I'd like to discuss their talks in class.

Talk 1: Today 12:00pm - 1pm (i.e., right before class):

Who: [Vince Cross](#)

Title: "Human Centered Innovation"

When: Monday 2/20 from noon - 1pm

Where: ATLS 208 (ATLAS Hackery).

Abstract:

As technology becomes more and more ubiquitous, it will continue to play larger and more complex roles in areas such as personal assistance, virtual training, medical services, driverless cars, manufacturing, mining, and aerospace. Successful design of any technological system, especially safety critical systems, is based on understanding its impact on the intended user. Failure to understand the human element can lead to costly errors, reduced/incorrect usage, or outright rejection. As such, emphasis must not solely be placed on the development of technology but rather the interaction between humans and technology coupled with an understanding of the contexts in which both interact.

In this talk, Dr. Cross will discuss his ongoing research into understanding how fundamental factors such as trust, shared mental models and information visualization of critical information leads to better interaction between people and technology.

Speaker bio:

Dr. E. Vincent Cross II is the Acting Human-Computer Interaction Discipline Scientist for NASA's Human Research Program at Johnson Space Center. His research in Human-Robot Interaction (HRI) and Human-Computer Interaction (HCI) has led to over \$1.75M in funding and numerous publications. Within HCI, Dr. Cross's research focus has been on how multimodal interfaces can improve interaction between man and machine, which led to his development of Prime III, a multimodal electronic voting system. More recently, Dr. Cross has assisted NASA in designing guidelines for how User Interfaces (UI) should be developed to display critical information to astronauts during Extravehicular Activities. Dr. Cross has also been able to apply HCI principles and techniques to solving HRI issues. This has led to research projects ranging from robots

utilizing simple anthropomorphic behaviors that improve the accuracy of an operator's mental model to wearable robotic systems.

Talk 2: Thursday 3:30pm - 4:30pm

Who: [Brad Hayes](#)

Title: "Learning to be a good teammate: Algorithms for Efficient Human-Robot Collaboration"

When: Thursday 2/23 3:30pm - 4:30pm

Where: DLC 170

Abstract:

Robots capable of fluent collaboration with humans will bring transformative changes to the way we live and work. In domains ranging from healthcare to education to manufacturing, particularly under conditions where modern automation is ineffective or inapplicable, human-robot teaming can be leveraged to increase efficiency, capability, and safety. Despite this, the deployment of collaborative robots into human-dominated environments remains largely infeasible due to the myriad challenges involved in creating helpful, safe, autonomous teammates.

In this talk I will present my recent work in overcoming these challenges, toward realizing flexible, communicative robot collaborators that both learn and dynamically assist in the completion of complex tasks through the application of novel learning and control algorithms. In particular, I will cover approaches to hierarchical task modeling, task and motion planning, and cooperative inverse reinforcement learning within the theme of human-robot teaming, focusing on the interpretable learning, synthesis, and execution of supportive behaviors. I will conclude with insights gained from real-world deployments of such systems and a perspective on future directions for human-robot teaming research.

Bio:

Dr. Bradley Hayes is a Postdoctoral Associate in the Interactive Robotics Group within the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology. Brad's research interests center around developing the algorithms necessary for building supportive, interactive, and intuitive robotic systems that are capable of performing complex collaborative tasks in environments shared with humans. His work combines theoretical advances and practical applications of machine learning, task and motion planning, human teaming psychology, and human-robot interaction.

Brad received his Ph.D. in Computer Science from Yale University in 2015, advised by Brian Scassellati. His work has been featured on TedXCambridge, Phys.org, CBC News, Wired, the BBC, Popular Science, MIT Technology Review, and the Boston Museum of Science.