HUMANITY CENTERED ROBOTICS INITIATIVE

BROWN

Paul Bello
Naval Research Laboratory

"Human-Robot Interaction and Cognitive Architecture Research at the Naval Research Laboratory"

Wednesday, March 18, 2015
12:00 – 1:30 pm
Barus and Holley Room 190

We will almost certainly witness a 21st-century robotics renaissance within AI and computational cognitive science that will serve as a catalyst for drawing roboticists, AI practitioners, and cognitive scientists together to solve basic problems posed by requirements for those robots to interact naturally with their human counterparts.

This talk will briefly cover ongoing efforts at the Naval Research Laboratory in the area of Human-Robot Interaction. Advances in Human-Robot Interaction require an underlying architecture for intelligence aboard the robot capable of engaging in such complex tasks. Within these architectures, basic questions arise at the porous borders between sensation, perception and cognition, right where we might expect to find attention doing its work. Yet most existing cognitive architectures are without sophisticated stories about attention. The rest of the talk introduces the ARCADIA cognitive system and explores its core commitments. ARCADIA, while still in early stages, is an attempt to put attention at the center of a cognitive system in order to address shortcomings in other approaches and to break new ground in modeling aspects of cognition that have been neglected but will be central to advancing the state of the art in cognitive robotics.

Paul Bello received his bachelors of science from Rensselaer Polytechnic Institute in Computer and Systems Engineering with a dual major in Philosophy. Also at RPI, he completed an M.S. in Computer Science and received his Ph.D. in Cognitive Science in 2005. As a research computer scientist at the Air Force Research Laboratory's Information Directorate, Bello worked on non-monotonic reasoning about obligations and the interplay of cognitive and affective factors during strategic reasoning. Then he joined the Office of Naval Research as the director of the Cognitive Science program, supporting a wide range of basic research in computational cognition and artificial intelligence, including inference over multi-representational data, natural language dialogue, socially-guided learning in human-robot teams, and the cognitive science of moral judgment. As of June 2013, Bello has moved to the Naval Research Laboratory where he heads the Interactive Systems research group.

Bello's interests lie at the interface of philosophy of mind, computation, and social cognition. He is particularly fascinated by the human capacity to detach from the real world in order to consider the past, possible futures, pretenses, hypotheticals, counterfactual alternatives, and the contents of other minds.

For more information on this talk and the HCRI Speaker Series, contact hcri@brown.edu or visit hcri.brown.edu.