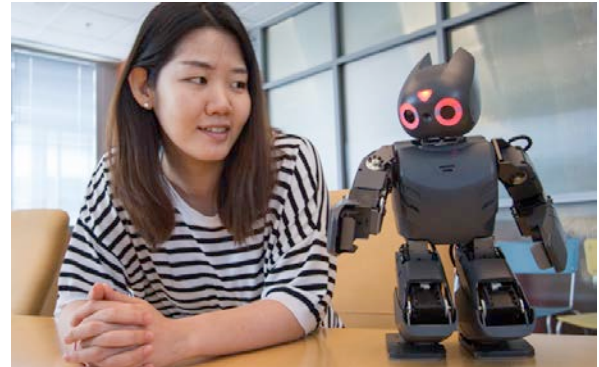# Robot Learners: Interactive Instance-based Learning with Social Robots

Dr. Hae Won Park
Georgia Institute of Technology
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12:00-1:00PM
Room 3507

Abstract
Programming a robot to perform tasks requires training that is beyond the skill level of most individuals. In this talk, I highlight the research effort in designing an interactive instance-based robot learner that generalizes task behaviors from accumulation of non-expert user demonstrations. I will discuss the results from our recent Angry Darwin Expedition, in which our robot, Darwin, learned to play a strategic game "Angry Birds" from various users. During a six-month period, over 130 people interacted with our robot learner including 90 children, among which 33 participated in the formal experiment. Our motivation was to combine a robot learner with a source that provides personalized context for interaction. Here, we propose integrating a touchscreen tablet and a robot learner for engaging the user during human-robot interaction scenarios; in particular, we measure how the system's learning models change based on the participant's engagement level. Through a tablet environment, the user teaches a task to the robot in a shared workspace and intuitively monitors the robot's behavior and progress in real time. In this setting, the user is able to interrupt the robot and provide necessary demonstrations at the moment learning is taking place, thus providing a means to continuously engage both the participant and the robot in the learning cycle.

Biography
Hae Won Park is a postdoctoral fellow in Electrical and Computer Engineering at the Georgia Institute of Technology. She is also the co-founder and a technical lead of Zyrobotics, a spin-off from Georgia Tech that is licensing the two patents generated from her PhD research. She earned her PhD and MS in Electrical and Computer Engineering from Georgia Institute of Technology in 2014 and 2009, and a BS in Electrical Engineering from POSTECH, Korea in 2006. Before joining Georgia Tech, she was a research scientist in the Robot Vision group at Korea Institute of Sciences and Technology. Her research interest is in making technology more inclusive and accessible, including learning and improving robot skills through accumulated experience from daily interaction with humans and designing assistive devices. Her research was featured in news articles including NSF Science Now, Engadget, TechCrunch, and CNET.