Getting Robots to Ask Good Questions

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We interact with AI everyday through voice assistants, spam filters, content recommenders, and more. While AI becomes increasingly commonplace, development in robotics has followed a different trend, finding traction in highly-specialized settings such as manufacturing and surgery. What is keeping us from developing robots that can help us in our everyday lives, such as around the home or the workplace?

A key challenge is that, unlike disembodied AI, robots must accommodate the physical and sensory complexity of the real world. This is further complicated by the peculiarities of every home, task, object, or routine that a robot may need to accommodate.

My research takes a collaborative lens toward this problem: by enabling a robot to ask for help, it can leverage a human's experience and domain knowledge. In this talk, I will describe how robots can reason about their uncertainty and learn from various forms of interaction. In doing so, my work contributes toward the ultimate goal of enabling robots to ask and learn from useful questions, leading toward a future of collaborative robots.

Dr. Tesca Fitzgerald is an Assistant Professor in the Department of Computer Science at Yale University. Her research is centered around interactive robot learning, with the aim of developing robots that are adaptive, robust, and collaborative when faced with novel situations. Before joining Yale, Dr. Fitzgerald was a Postdoctoral Fellow at Carnegie Mellon University, received her PhD in Computer Science at Georgia Tech, and completed her B.Sc at Portland State University. She is an NSF Graduate Research Fellow (2014), Microsoft Graduate Women Scholar (2014), and IBM Ph.D. Fellow (2017).

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