ROBOTICS SEMINAR

FRIDAY, February 5, 2021

3:30-4:30 p.m.

Join Zoom Meeting
Meeting ID: 957 2467 9972
Passcode: RISEM

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What Happens to Electronic Devices When We're Done with Them?

Abstract: We generate roughly 3 million tons of electronics (e) waste each year in the United States. Depending on how you count, about 25% of that is recycled domestically. The rest, or the vast majority of it (50-70%), is exported, commonly to be manually disassembled in nations where regulations on working conditions are difficult, if not impossible to enforce. This is a pretty big problem, as e-waste typically contains lead, mercury, cadmium, arsenic and flame retardants that can be toxic for workers and environment. Surely, this seems like a problem where automation has the potential to deliver a clear positive impact: Reduce the burden on developing nations by dramatically reducing the amount of e-waste exported to them. However, automation for e-waste recycling does not really exist. Even in developed nations, the end-of-life disassembly of e-waste is primarily manual. In this talk we will discuss why this is the case, and what current efforts Carnegie Mellon and Apple are pursuing to hopefully help change what role robotics and automation play in the future of e-waste. Specifically, this talk will discuss an ongoing project that pairs ideas from artificial intelligence and machine learning (GNNs, transfer learning, meta-learning, etc.) with novel mechanism design (direct drive manipulator, direct drive end effector, etc.) to reimagine an e-waste recycling system that learns to teach itself how to take apart new items over time.

Brief Bio: Matt Travers is a Systems Scientist in the Robotics Institute. He works on a variety of systems from robotic snakes to walking systems, wind turbine control to e-waste recycling automation. Matt's research covers a number of areas including constrained optimization, representation learning, and planning under uncertainty. Mostly, Matt likes building robotic systems soup to nuts.

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