

#1928506: Shared Autonomy for the Dull, Dirty, and Dangerous: Exploring Division of Labor for Humans and Robots to Transform the Recycling Sorting Industry

PIs: Berk Calli¹ (bcalli@wpi.edu), Aaron Dollar², Kate Saenko³, Co-PIs: Vitaly Ablavsky⁴, Marian Chertow², Brian Scassellati², Barbara Reck², Jacob Whitehill¹, Amy Wrzesniewski²,



Scope

- **Focus:** materials sorting for recycling
- **Recycling:** \$117B economy, 530k workers in US
- Tight profit margins, inefficient, high injury rates

Goal: Best division of labor for humans-robots

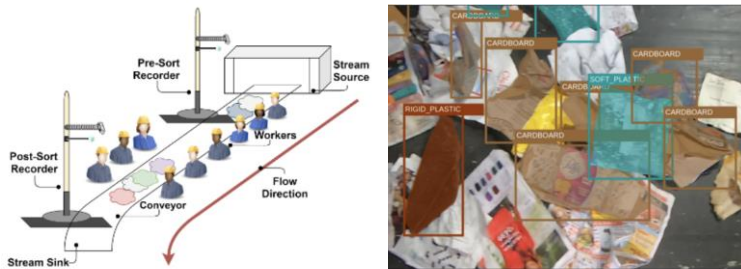
Profitable Industry

Safe and Meaningful work

Environmentally Sustainable Economy

Future of Waste Sorting Technology

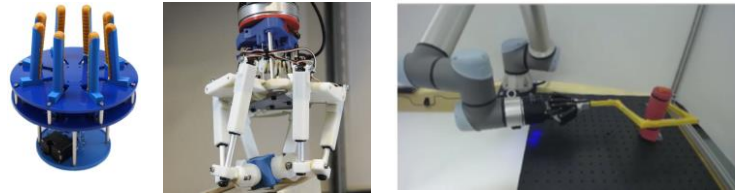
Waste Type Recognition



Waste Sorting Setups



Robotic Picking in Clutter



Scenario Analysis Framework



Human Machine Interface

Two-way Learning



AI Assistant with Soft Predictions

Round 1 of 3: Remaining Time: 1:30

Score: 75

