

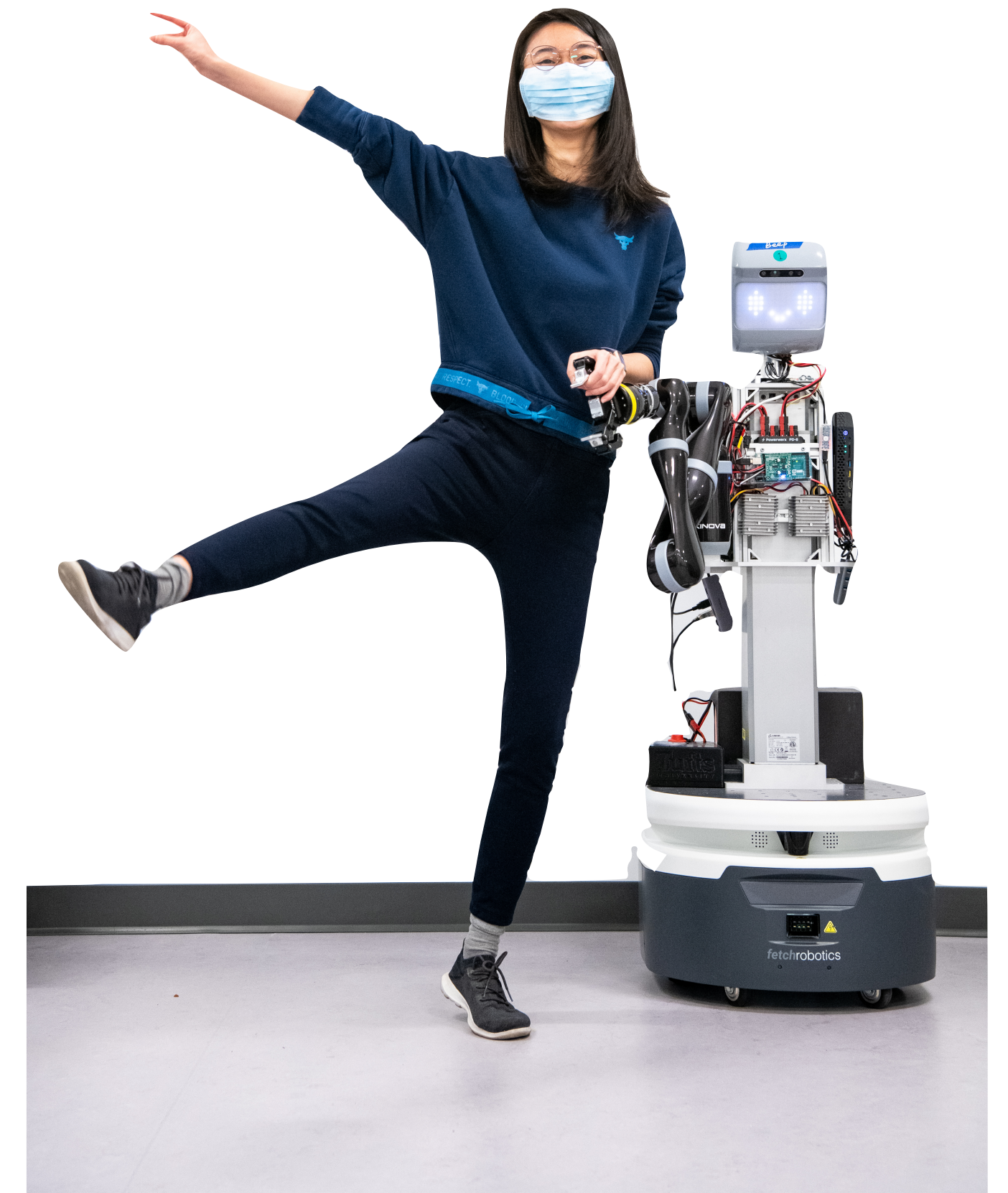
NRI: Mutually Assistive Robotics

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Tufts University

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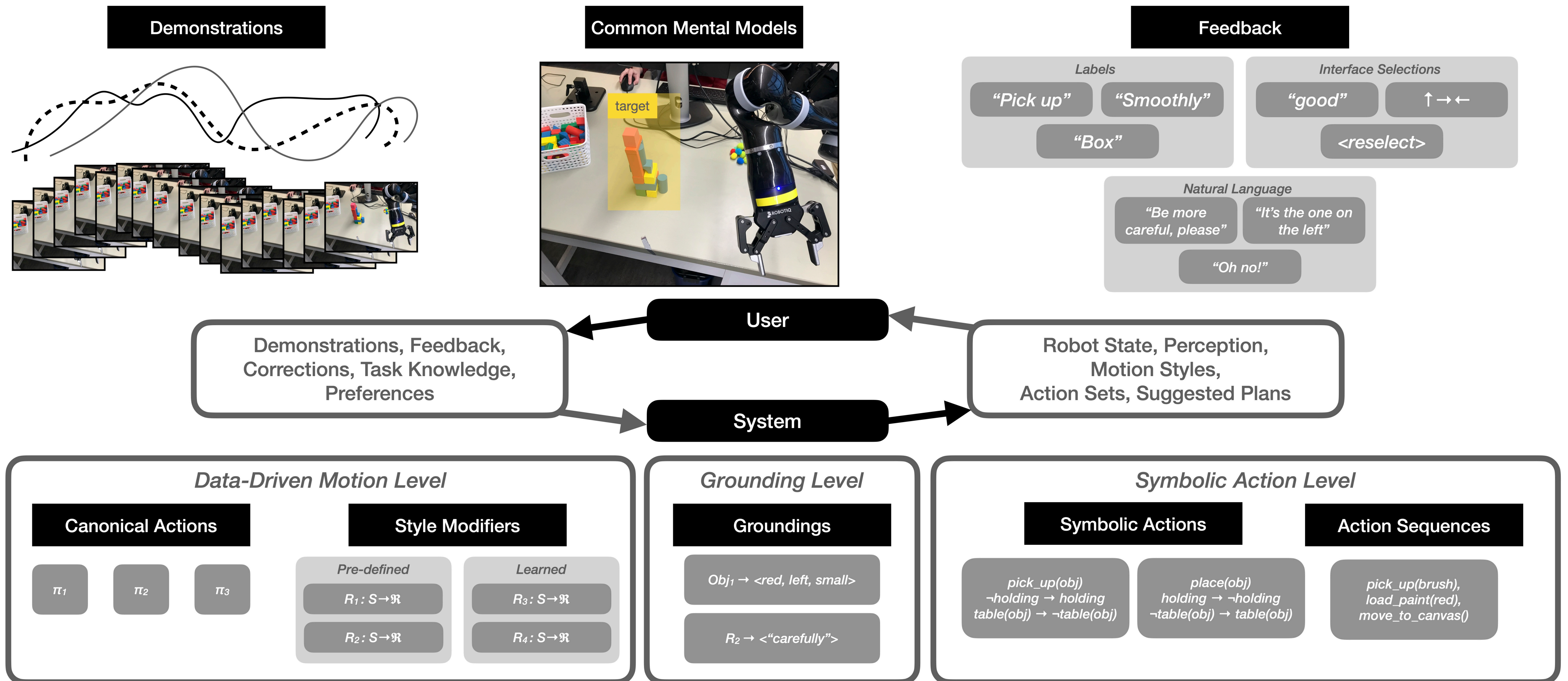
Motivation

- **Strengths-based approach** to assistive robotics
- User and robot **complement each other**, with assistance freely flowing in both directions
- Users empowered to **understand and control** both high-level task goals and low-level characteristics of robot's movement
- **Joy and self-determination are central** for disabled users, in tasks that make life enjoyable, not just easier for caregivers



Multi-Level Approach

Mutual assistance at all levels of abstraction, enabled by common mental models



Potential Impact

Scientific Contributions

Algorithms for learning new manipulation skills with mutual assistance at multiple levels of abstraction

Methods for giving users usable mental models of robots, such as using AR to empower users to understand robot perception and decision-making

Algorithms for mutual assistance after initial models are learned that enable users to provide feedback on and influence all aspects of learned robot behavior



Broader Impacts

Improved performance and customizability of co-robots through human assistance

More disability-friendly intelligent assistive robotics

Assistive robot behavior designed for joy and creativity, not just chores

Education & Outreach

Hybrid virtual/in-person community to support disabled people in modifying their own intelligent assistive devices

Direct dissemination to disability community through PI connections (AccessComputing BPC Alliance; self-advocacy groups)

Team

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