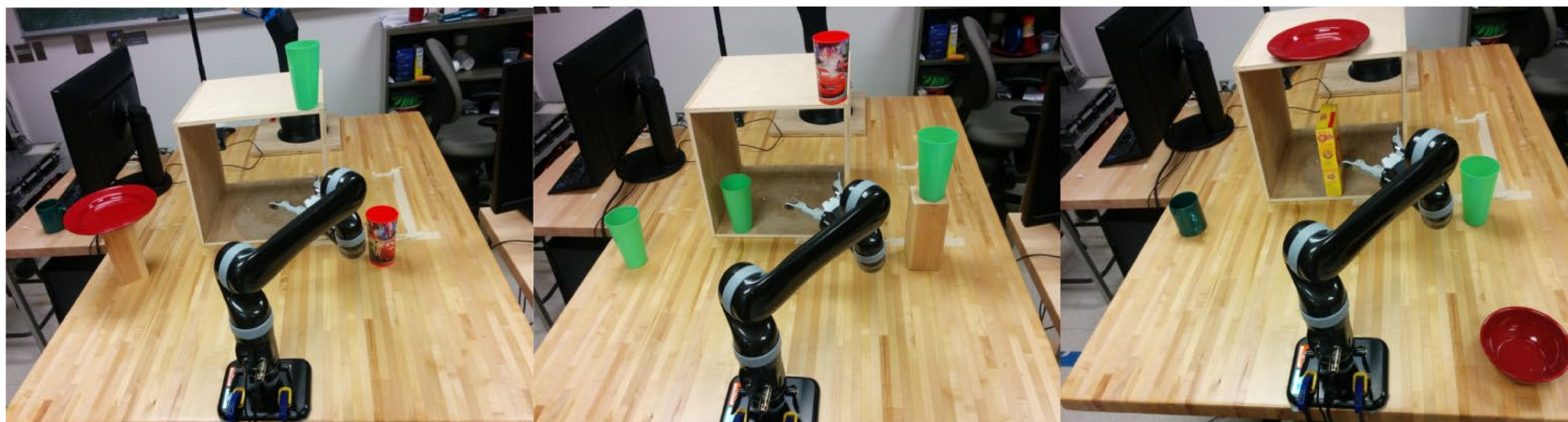


Dynamic Neural Fields for Short-term Behavior Recognition from Motion Cues



- Behavior recognition - critical for successful HRI.
- Motion provides cues regarding user intention.
- In the context of robotic manipulation, intent inference \Leftrightarrow Probability distribution over discrete goals.

Dynamic Neural Fields

$$\frac{\partial \mathbf{p}(t)}{\partial t} = \frac{1}{\tau} \left[-\mathbb{I}_{n_g \times n_g} \cdot \mathbf{p}(t) + \underbrace{\frac{1}{n_g} \cdot \mathbb{1}_{n_g}}_{\text{rest state}} \right] + \underbrace{\lambda_{n_g \times n_g} \cdot \sigma(\xi(\mathbf{u}_h; \Theta))}_{\text{excitatory + inhibitory}}$$

- Inherent memory
- Recurrent interactions
- Robustness to perturbations