

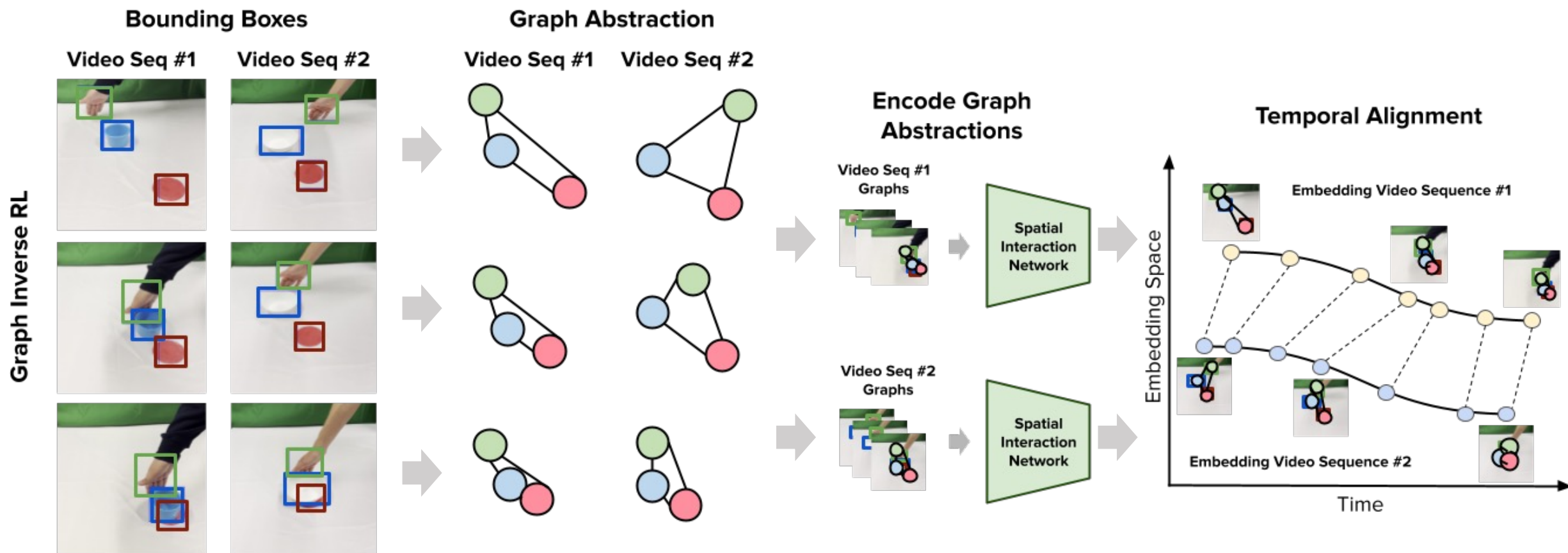
Inverse Reinforcement Learning from Diverse Third-Person Videos via Graph Abstraction

Sateesh Kumar, Jonathan Zamora*, Nicklas Hansen*, Rishabh Jangir, Xiaolong Wang

How can we learn a reward function from
diverse third-person videos at scale?

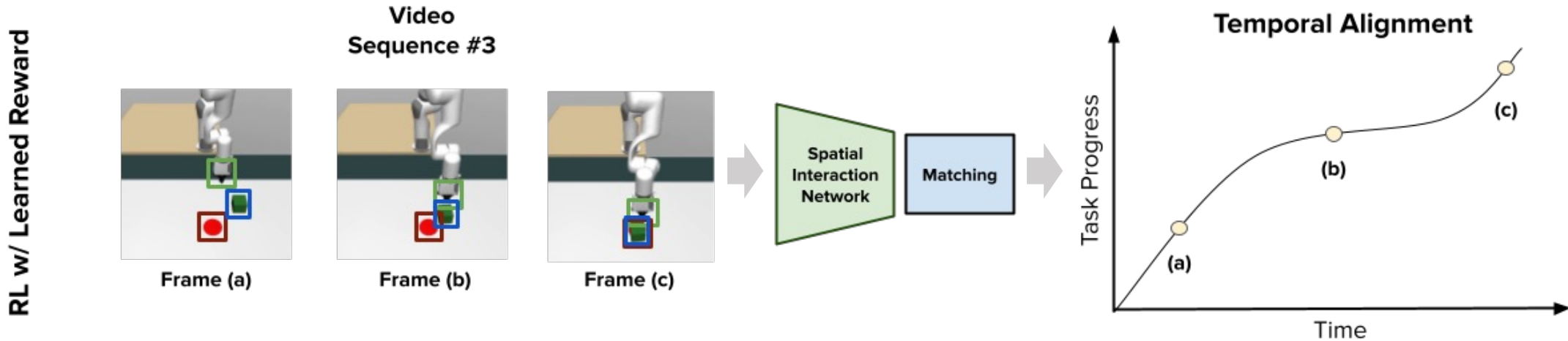
Introducing: Graph Inverse Reinforcement Learning (GraphIRL)

GraphIRL learns a reward function via a **graph abstraction** through its 4 components:



Introducing: Graph Inverse Reinforcement Learning (GraphIRL)

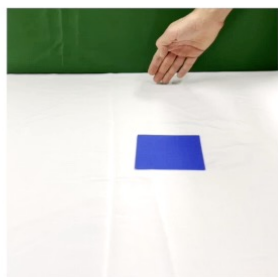
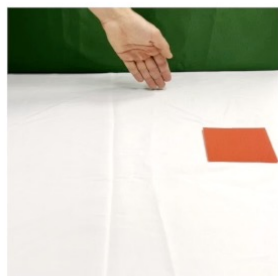
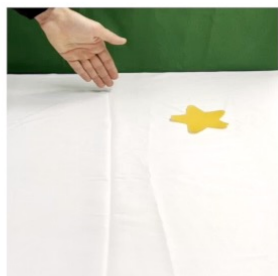
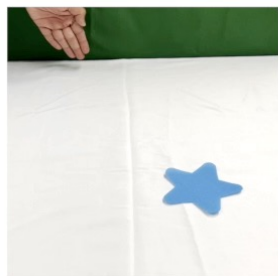
The learned reward function is then
used for **Reinforcement Learning**



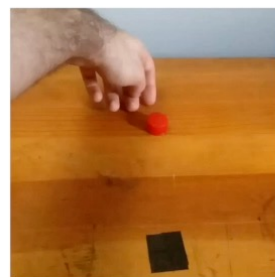
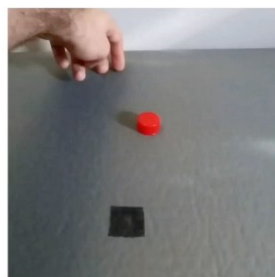
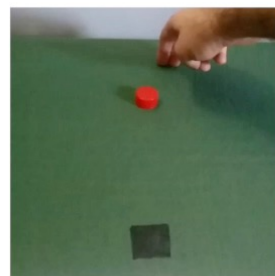
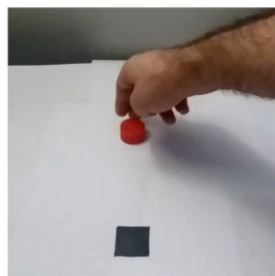
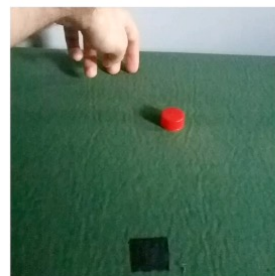
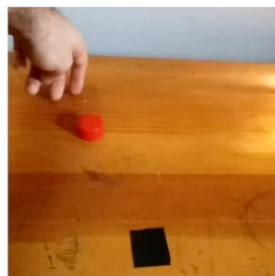
Learning from 3rd Person Human Demonstrations

We learn a reward function from **diverse human demonstrations**

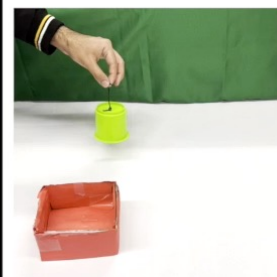
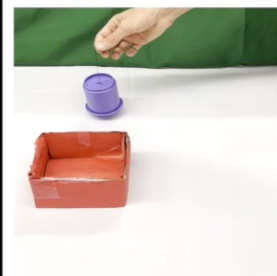
Human Demonstrations



Reach



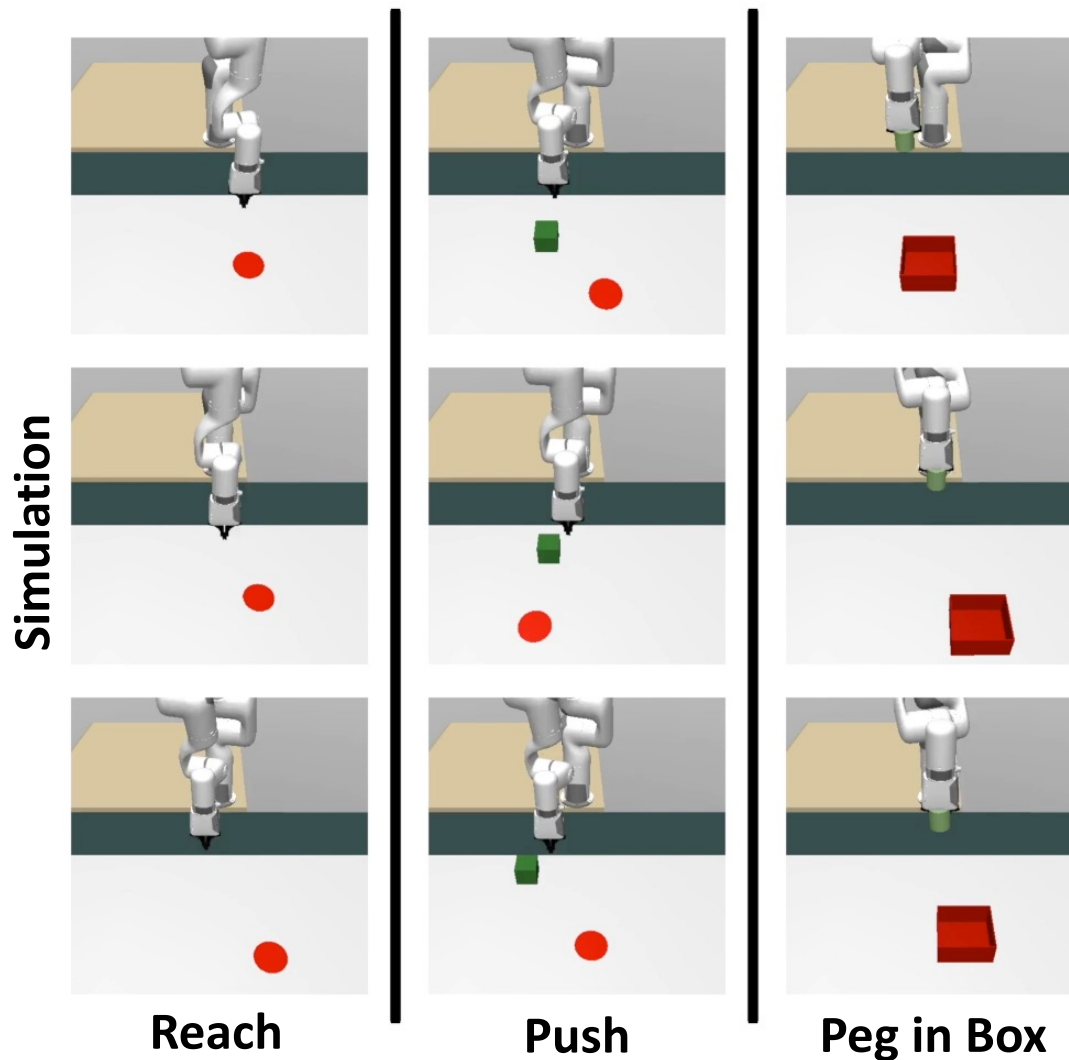
Push



Peg in Box

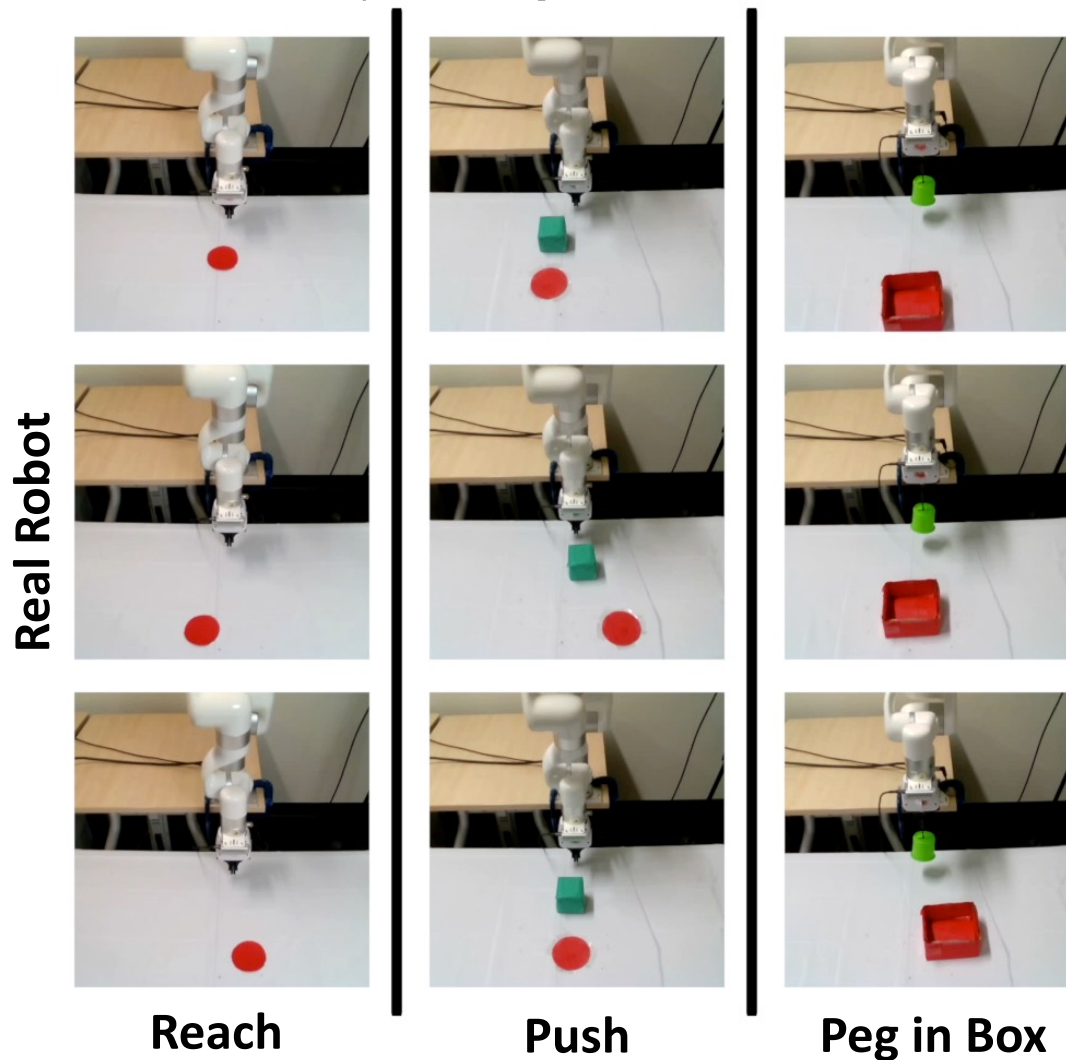
Learning from 3rd Person Human Demonstrations

We **use the learned reward functions** from each task to learn a task-specific policy



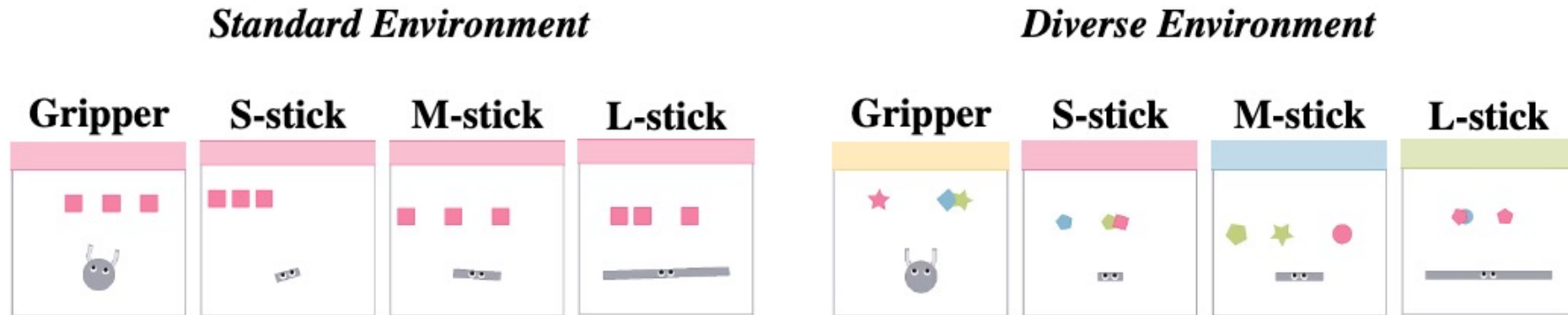
Learning from 3rd Person Human Demonstrations

Policies trained with *GraphIRL* **perform well at sim2real transfer**



X-MAGICAL Benchmark

We use the X-MAGICAL **standard** and **diverse** environments w/ 4 embodiments



Results available at

<https://sateeshkumar21.github.io/GraphIRL/>

