CSE 598 Project Proposal: Imitation Learning with Baxter Robot using Hi-Fives

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***Abstract*— The goal of this project is to successfully learn hi-fives through human-robot interaction. We will be using an Imitation Learning approach that incorporates Bayesian Interaction Primitives (reference to Joe). Through this experiment, we aim to develop a responsive interaction with the robot.**

I. INTRODUCTION

Teaching robots how to learn new tasks and interact with humans can be done using a variety of methods. Imitation learning, which uses a human expert to guide the interaction, is one popular approach that we seek to use for this experiment.

II. RELATED WORK

A. Bayesian Interaction Primitives

Joe Campbell, int prim

B. Reinforcement Learning

Find some RL paper

III. PROBLEM STATEMENT

Create a robot that can hi-five in vrep and in person.

A. Simulation

We will do simulations in VREP.

B. In person

We will do in person experiments with the actual robot.

IV. EXPERIMENTS

Discuss experiments

A. Data Generation

Optitrack, ROS, etc.

B. Biomechanics

Discuss biomechanics aspect

C. Domains

Discuss the domain of our project

D. TBD section

TBD if we need more space.

V. PARAMETER TUNING

We had to tune some parameters.

VI. DISCUSSION AND ANALYSIS

Not applicable yet.

VII. CONCLUSIONS

Not sure about this either.

REFERENCES

[1] Chris Paxton, Vasumathi Raman, Gregory D Hager, and Marin Kobilarov. Combining neural networks and tree search for task and motion planning in challenging environments. ArXiv e-prints, 2017.