

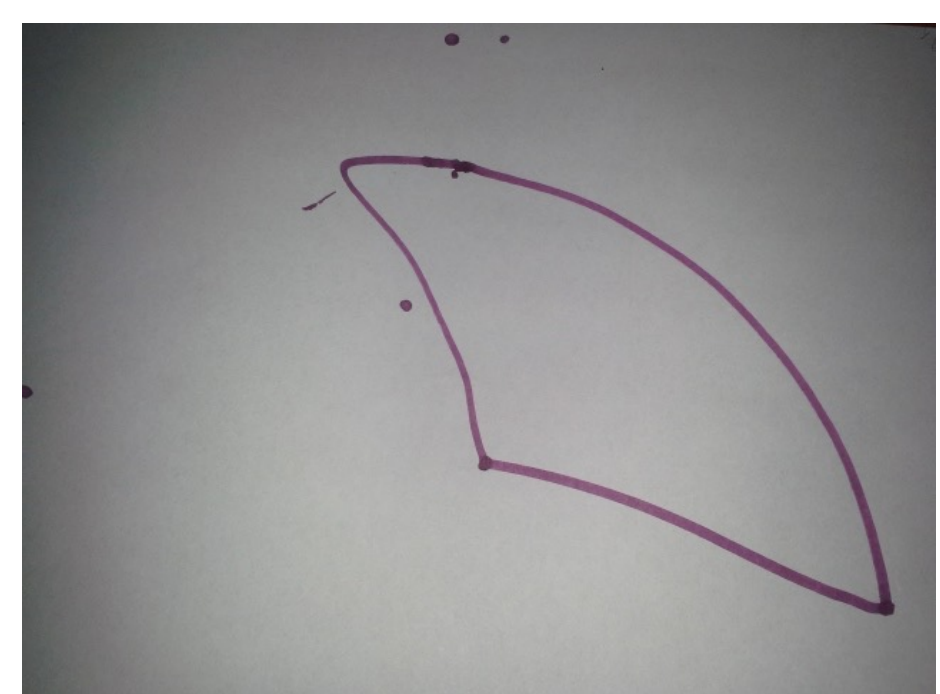
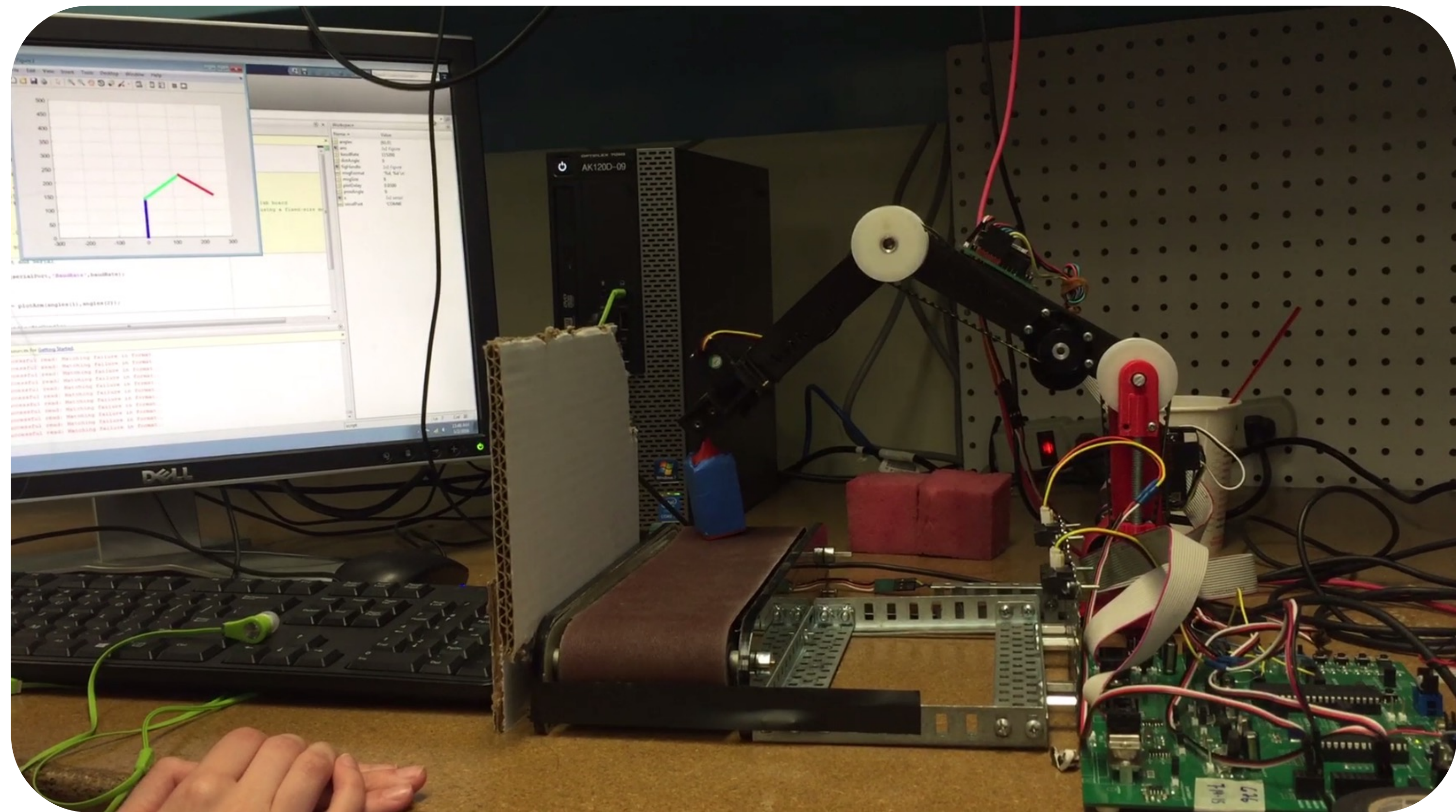
WPI Robotics Engineering (RBE) Course 3001 – 2016

Project: Programmed position control of 2 degree of freedom robotic arm on embedded system. Arm capable of sorting blocks by weight. [Demo Video](#).

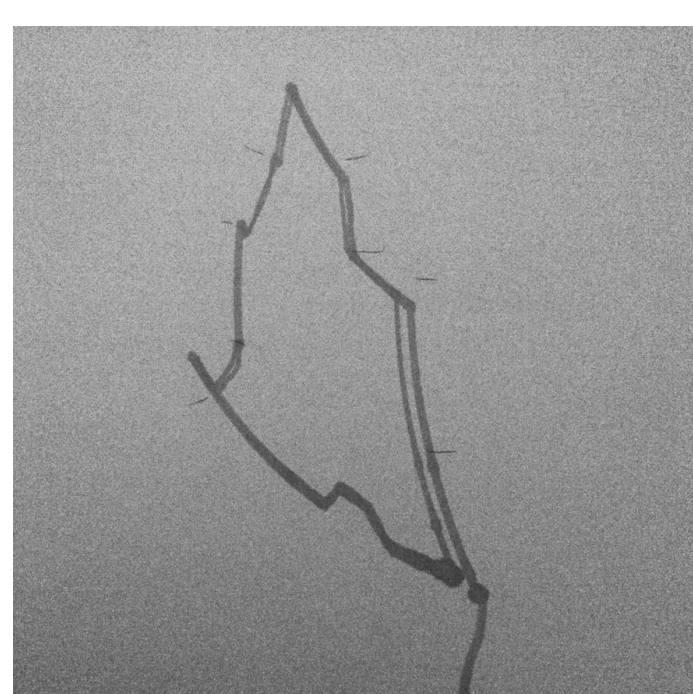
Contributions: Inverse kinematic solver and PID control loop.

Project type: WPI class project. This project, and the WPI projects on the following slides were completed in the last 2-4 weeks of a 7 week course on 3-4 person teams.

2 DOF Robot Arm



Triangle drawn only going to coordinates of endpoints



Triangle drawn going to intermediary points. 2DOF life is rough

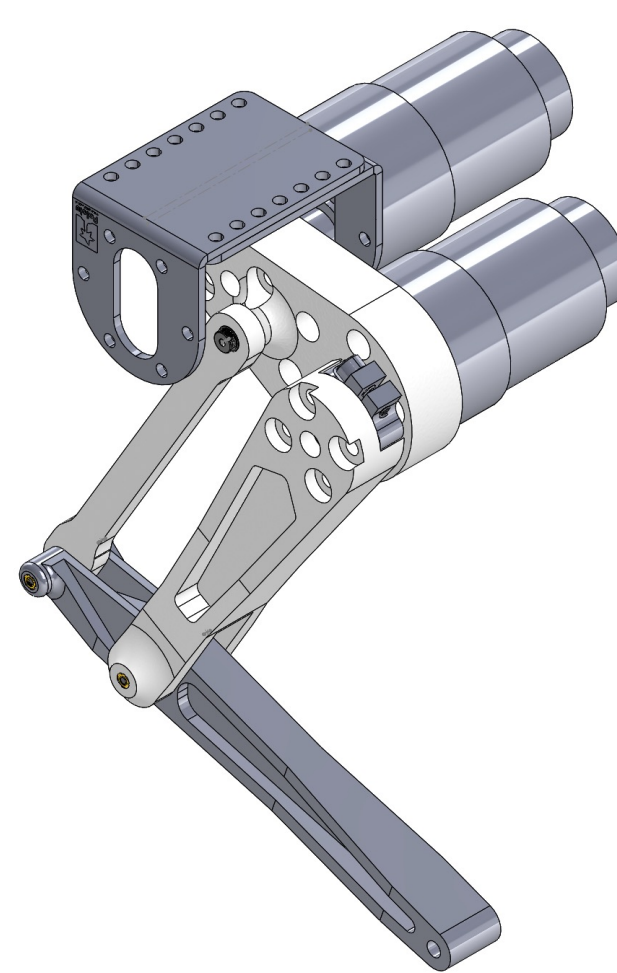
MIT 2.74 Bio-Inspired Robotics – 2019 Prof. Sangbea Kim 2 DOF Legs Revisited

Labs focused on impedance controllers and using the current draw of the motor in addition to the encoder position as the control inputs for the for actuator.

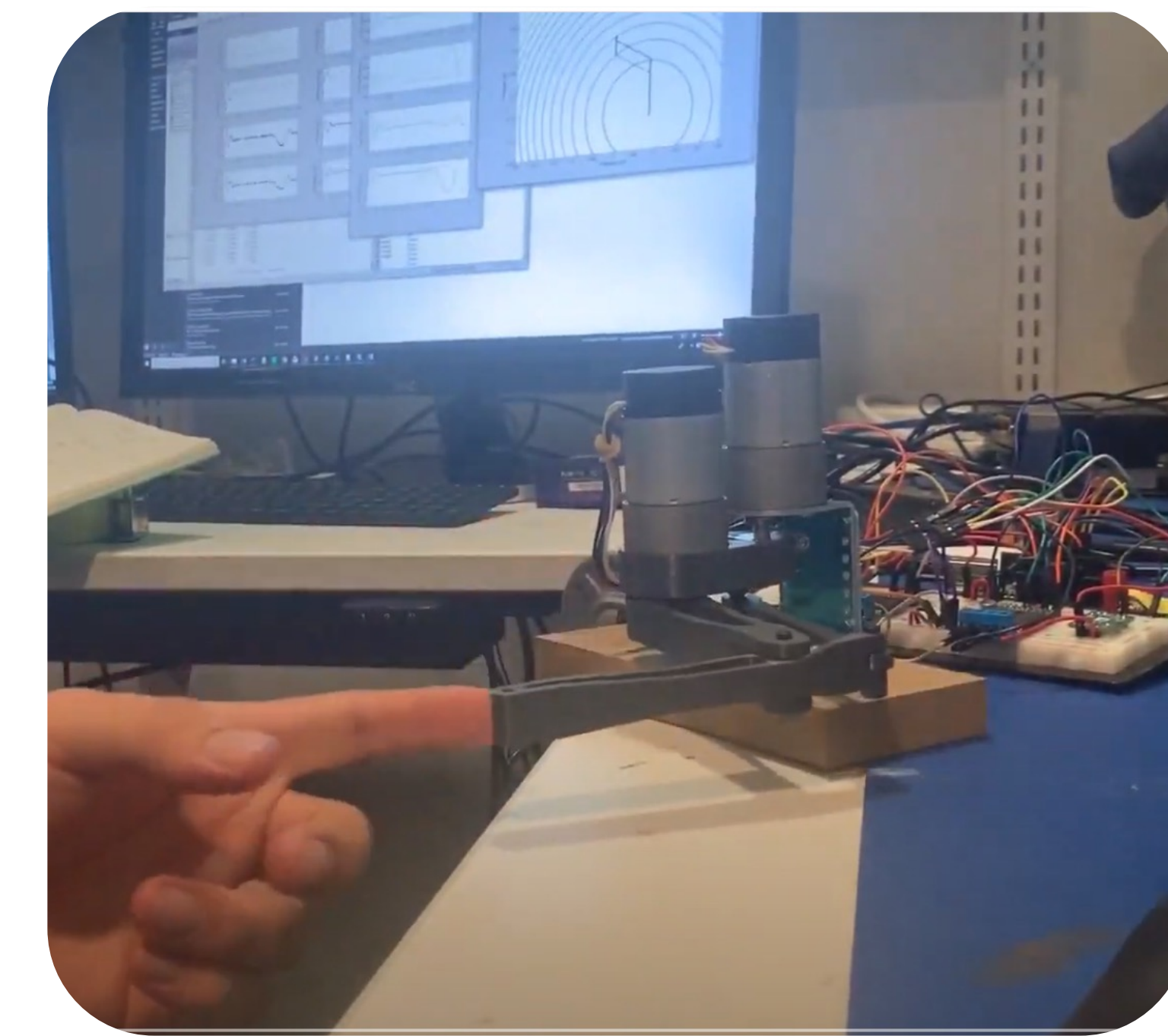
The assignments were to implement various control schemes, then playing with the parameters to explore their effect on the behavior.

The final project was open ended. My four-person team explored manual turning vs simulation-based tuning for a robot dropped from two feet.

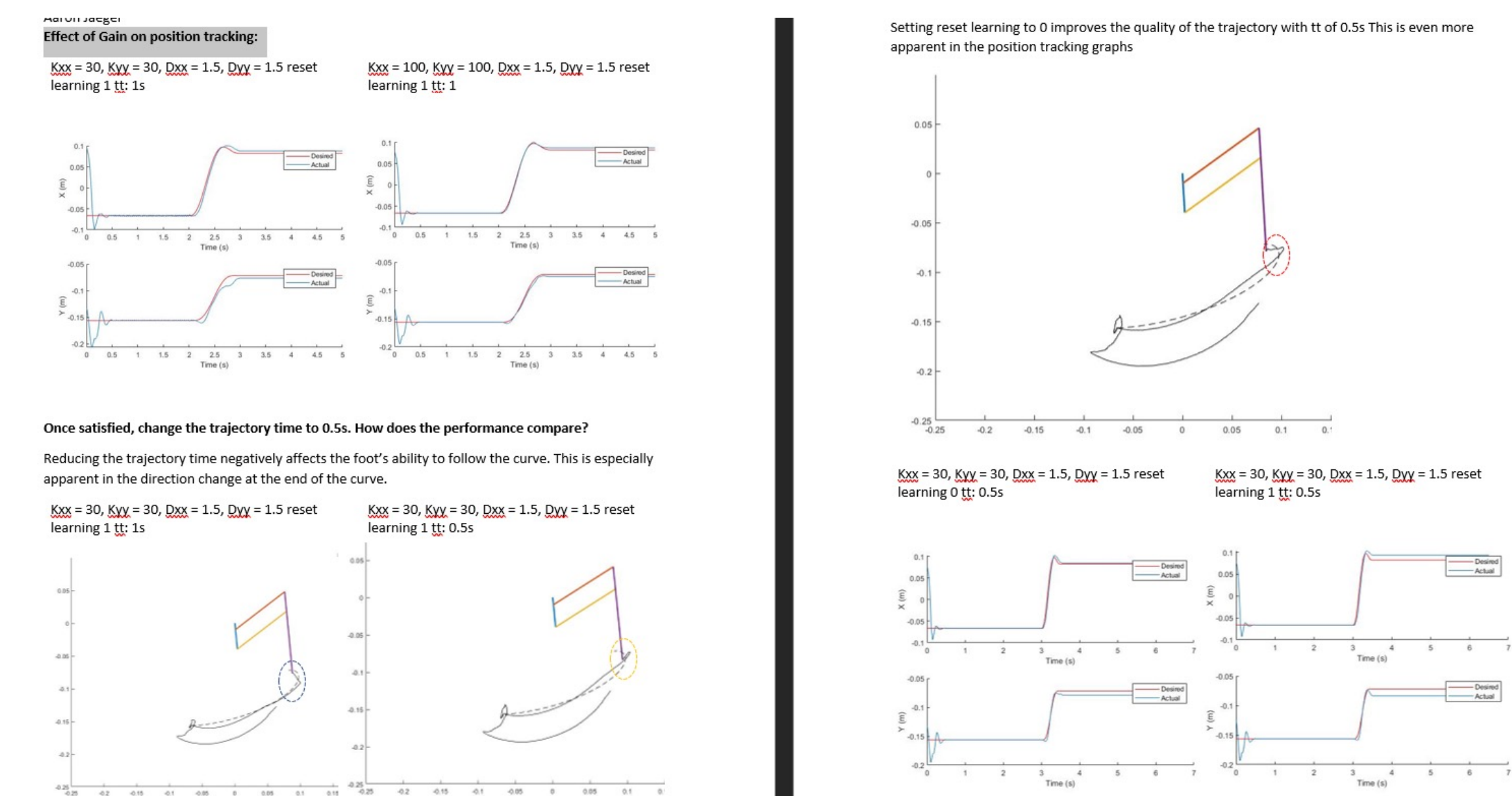
2 DOF parallel robot leg used for class assignments



Testing the Robot Leg



Exploring Control Parameters



Final Project Leg Landing

