

Adam Chung

linkedin.com/in/adamc1269/ | <https://addem26.github.io/>

EDUCATION

Carnegie Mellon University

Fall 2017 – Spring 2021

Bachelor of Science in Mechanical Engineering

Concentrations in Robotic Motion Planning/Controls and Electromechanical Systems

RELEVANT COURSEWORK

Special Topics: Robot Dynamics and Analysis

Feedback Control Systems

Electro-Mechanical Systems Design (Spring 2021)

Gadgetry (Mechatronics)

Engineering Design I

Numerical Methods

SKILLS & FABRICATION

Programming Languages: C++ (Most experienced), Python, Java

Application Software: ROS, MATLAB/Simulink, Linux

Simulation: Gazebo, MuJoCo

CAD: SolidWorks, Inventor

Machines: 3D Printer, Mill, Laser Cutter, Lathe, CNC

RELEVANT EXPERIENCE

Undergraduate Research Assistant, Carnegie Mellon: Robomechanics Lab

Spring 2020 – Present

- Assist with the development of the planning/control stack for our Spirit quadruped platform. *Advisor: Prof. Aaron Johnson*
- Focus on the implementation of online foothold optimization algorithms to act as our local footstep planner subsystem.
- Use tools such as ROS, Gazebo, CMake, google test, revision tracking, and doxygen.

PROJECTS

Flamingobot Project, Robomechanics Lab

Spring 2020 – Fall 2020

- Research was focused on passive standing using minimal motor input.
- Assisted team with the mechanical design and implemented optimal control strategies based off humanoid push recovery.
- The two main control schemes used were PD control for the ankles and Bang-Bang control for the hips; later these were generalized into LQR control for the ankles and MPC control for the hips which was more computationally taxing but much more responsive to external disturbances.
- Used tools such as MuJoCo and MATLAB for modeling/control algorithms and python for data collection.

Autonomous Grow System, Gadgetry (Mechatronics)

Fall 2020

- Created a plant growing system with automatic watering, light control, and an interactive user interface with an Arduino microcontroller and several different sensors and actuators.
- Designed frame in Solidworks and 3D printed each subassembly. Subassemblies were fastened via threaded inserts and screws.
- Built the design so the user has the option of interacting with numerous push buttons and a potentiometer to set the moisture and light intensity on an LCD screen; these values are then mapped to the respective control subsystems.
- Designed several different software libraries in C++ for external peripherals that did not already have them such as the water pump, push buttons, LED strips, and the water level sensor.

Robotic Manipulator Case Study, Feedback Controls Systems

Fall 2020

- Created a simulation framework that was focused on implementing different control algorithms for the Kinova Jaco manipulator arm using Simscape Multibody and Robotic Systems Toolbox.
- Inverse kinematics were computed for set of arbitrary waypoints to determine desired joint configurations and a trapezoidal velocity trajectory is generated.
- Implemented two popular control algorithms in the field of robotic manipulation, a computed torque controller and a PD controller.

EXPERIENCE

Computer Science Instructor, Juni Learning

Summer 2020 – Present

- Instruct children ages 10 to 18 in different aspects of computer science and guide them through projects in C++ and Python.

Assistant Director of Proyecto Science, New Jersey City University

Spring 2019 – Fall 2019

- Collaborated with a small team to run a STEM summer program for high achieving public school students in grades 7-9.
- Assisted in the planning an execution of curriculum as well as overall budget management.
- Worked firsthand in training teachers as well as interacting with parents and students on a consistent basis.

ACTIVITIES

Robotics Club

Fall 2017 – Present

National Society of Black Engineers (NSBE)

Fall 2018 – Present