JAE-EUN (ESTHER) LIM

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EDUCATION

Carnegie Mellon University
Pittsburgh, PA
GPA 3.84/4.00

Bachelor of Science in
Mechanical Engineering
Additional Major in Robotics
Spring 2018

Master of Science in Robotics
Fall 2019

SKILLS

Software
SolidWorks
Autodesk Inventor
MS Office
Arduino
Weka/LightSide

Machines
CNC
Lathe
Drill Press
Band Saw
Milling Machine
Laser Cutter
3D Printer

Programming
C/C++
Python
MATLAB/Simulink
HTML/CSS/Django (self taught)

Languages
Fluent in Korean & English

RELEVANT COURSES

Mechanical Engineering
Engineering Design I
Feedback Control Systems
Dynamic Systems and Controls
Statics, Stress Analysis, Dynamics
Mechanical Systems Experimentation
Thermal-Fluids Experimentation
Thermodynamics
Fluid Mechanics
Heat Transfer

Robotics
Soft Robotics
Computer Vision
Machine Learning
Robotics Systems Engineering
Robot Kinematics and Dynamics

Others
Eng. Stats and Quality Control
Business Communications

RELEVANT EXPERIENCES

Research Assistant – Robomechanics Lab, *Fall 2017-Spring 2018*
- Conducted research in visual odometry for legged robots.
- Created simulations of bounding gait vision.

Engineering Intern – **Verify Apply**, *Summer 2017*
- Designed and implemented frontend and backend of website from scratch.
- Used Django framework.

Engineering Intern – **Perception Robotics**, *Summer 2016 (Los Angeles, CA)*
- Designed test rig for gecko gripper to test scaling effect on adhesion pressure.
- Manufactured molds for touch sensors using 3D printer.
- Conducted risk assessment for touch sensors on FANUC robotic arm.
- Operated Kawasaki RS06L using AS Language.

MECHANICAL ENGINEERING PROJECTS

Heat Sink, *Spring 2017*
- Investigated and analyzed a commercial CPU heat sink to determine if it will meet required performance.

Atlas, Auto-Steering Buggy – Project Lead for IMU Suspension System, *Spring 2017*
- Designed and built suspension system for IMU mount.

Smart Ball – Build18 Annual Engineering Festival, *Spring 2017*
- Designed and built a remote-controlled ball that bounces around. Won Media Magician Award.

Pokeball Gripper – Second Lightest Gripper, *Fall 2016*
- Designed the second lightest gripper to hold and swing 3-lb Pokeball.

Motor & Gearbox, Wheel Design – Engineering Design I, *Fall 2016*
- Designed and selected the most efficient manufacturing process for mass production of a wheel that would roll in a barrel to climb up a ramp.
- Selected motor and gearbox combination for the wheel that would optimize a cost function of roll time, energy, and price.

ROBOTICS PROJECTS

Smart Dog Toy – Capstone, *Spring 2018*
- Designed and built semi-autonomous dog toy that interacts with the dog and feeds the dog.

Physical Pac-Man Game – Capstone, *Fall 2017-Spring 2018*
- Designed and built autonomous Pac-Man and tele-operated Ghost robots.
- Designed and built portable and easy to assemble game board.

Feeding Robot, *Fall 2017*
- Programmed a 5 degree-of-freedom robotic arm to scoop up beads and drop them into a hole to simulate feeding a person.

Motion Sensing Glove, *Spring 2017*
- Modeled bending of finger and error in mapping of resistance and bend angle.

Machine Learning-Sentiment Analysis, *Spring 2017*
- Optimized machine learning algorithm via error analysis and parameter tuning.

Robotics Projects – Weekly Labs for Introduction to Robotics, *Spring 2016*
- Designed nine robots using Lego Mindstorms and wrote code in robotc to complete projects with the following topics: Computer vision, PID control, dead reckoning, motion planning, localization, urban search and rescue, and forward/inverse kinematics.

LEADERSHIP AND ACTIVITIES

Co-VP of Outreach Committee, WoMEn@CMU, *Fall 2016 – present*
- Organize outreach events to expose Mechanical Engineering to local middle/high school female students through in-class sessions composed of a lecture and a hands-on experiment.

Teaching Assistant – **Introduction to Robotics**, *Spring 2017 – present*
- Organize and lead labs. Help students in office hours. Assess students for the labs.

Sunday School Leader, Los Angeles Hope Church, *Fall 2013-Summer 2015*
- Coordinated and led Bible quizzes and activities (incorporated science and technology).
- Designed and decorated new Sunday school building.