# JAE-EUN (ESTHER) LIM

(626) 689-3713
esther.lim.719@gmail.com
https://github.com/jaeeunlim
https://jaeeunlim.github.io/my-projects/
https://www.linkedin.com/in/jae-eun-esther-lim-1131a063

## EDUCATION

**Carnegie Mellon University**
Pittsburgh, PA
GPA 3.79/4.00

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

## SKILLS

**Programming/Software**
Python
C/C++
Java
MATLAB/Simulink
SolidWorks
Weka

**Frameworks/Applications**
OpenCV
Django
AWS
Git

**Languages**
Fluent in Korean & English

## RELEVANT COURSES

Computer Vision
Machine Learning
Feedback Controls System
Robotics Systems Engineering
Robot Kinematics and Dynamics
Fundamentals of Programming and Computer Science
Principles of Imperative Programming
Engineering Statistics and Quality Control
Soft Robotics

## WORK EXPERIENCES

**Mobile Computer Vision Engineer – Diamond Kinetics, Inc.** *September 2018-present (Pittsburgh, PA)*
- In R&D team developing new baseball/softball swing/pitch metrics using sensor data processing and computer vision for video analysis. My tasks include:
  - Develop computer vision algorithms to facilitate baseball/softball motion analysis.
  - Implement and analyze IMU and magnetometer data processing algorithms for baseball/softball pitches and swings.
  - Create benchmark data and test new metrics.

**CAD Design Automation Intern** – **Kennametal, Inc.** *Summer 2018 (Latrobe, PA)*
- Developed application in C++ to automate tray loading for milling inserts.
- Created algorithm for arranging different shapes of milling inserts and optimized peg pitch on tray for space efficiency.

**Research Assistant – Computer Vision Group, Robomechanics Lab**, *Fall 2017-Spring 2018*
- Conducted research in visual odometry for bounding legged robots to explore the effect of pitch motion in visual odometry estimation.
- Created MATLAB simulation of the camera view of a bounding robot.

**Software Engineer Intern** – **Verify Apply**, *Summer 2017*
- Designed and implemented frontend and backend of website from scratch using Django and SQL.

## PROJECTS

**Computer Vision**, *Spring 2018*
- Implemented in MATLAB: Hough transform, bag of visual words, OCR using neural networks, image matching, stitching and homographies, 3D reconstruction, image alignment and tracking.

**Machine Learning**, *Spring 2018*
- Implemented in C++ and Java: decision tree, logistic regression, neural network, Hidden Markov Model, reinforcement learning.

**Smart Dog Toy – Capstone (Most Innovative Award)**, *Spring 2018*
- Designed and built a treat-dispensing dog toy with a live stream camera that is remote-controlled via web app.

**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 in MATLAB a 5 degree-of-freedom robotic arm to scoop up beads and drop them into a hole to simulate feeding a person.

**Robotics Projects – Introduction to Robotics**, *Spring 2016*
- Designed nine robots with Lego Mindstorms and programmed them to implement PID control, dead reckoning, motion planning, localization, urban search and rescue, and forward/inverse kinematics.

## LEADERSHIP AND ACTIVITIES

**Teaching Assistant** – **Introduction to Robotics**, *Spring 2017, Spring 2018*
- Organized and led labs. Helped students in office hours. Assessed students for the labs.

**Outreach Chair, WoMEn@CMU,** *Fall 2016 – Spring 2018*
- Organized outreach events to expose engineering to local middle/high school female students through in-class sessions composed of a lecture and a hands-on experiment.