Naoki Yokoyama

(US citizen)

Website: naoki.io | linkedin.com/in/naokiyokoyama

Education & Skills:

Northeastern University *Boston, MA* **GPA: 3.64** **May 2018 (MS & BS degrees)**

Electrical and Computer Engineering: Concentration in Computer Vision, Machine Learning, and Algorithms

Merit Awards & Honors: Joseph Spear Scholarship, Clara & Joseph Ford Scholarship, Karen T. Rigg Shining Torch Scholarship, SASE Kellogg Scholarship, Dean's Scholarship, Dean's List, Honors Program, Eta Kappa Nu

Relevant Coursework: Intro to Machine Learning, Intro to Computer Vision, Robotics Sensing & Navigation, Assistive Robotics, Robotics, Classical Control Systems

Skills: Keras, TensorFlow, OpenCV, Python, C/C++, ROS, MATLAB, Linux

Projects & Research Experience:

Research at Robotics and Intelligent Vehicles Research Lab at Northeastern **Jan 2018—**

- Used Tensorflow and Darknet to train and implement SSD and YOLO object detection models.
- Created scripts in OpenCV to generate artificial training sets from videos taken of each object, augmented with various types of noise to make detection more robust.
- Currently developing a deep convolutional shape completion model to generate 3D voxel grids from images and partial 3D scans in order to improve grasp detection for the robot.

Deep Learning Tutorials | naoki.io/dlt **Jan 2018—**

- Creating posts on my site detailing various deep learning concepts, such as convolutional neural nets, activation functions, and autoencoders, citing papers published at various conferences.

Udacity AI for Robotics Project | naoki.io/portfolio/lane_detection **Feb 2017—May 2017**

- Used OpenCV to highlight lanes in dashcam footage recorded from driving around Boston.
- Implemented convolutional filters, Canny edge detection, color and contour thresholding, and perspective warping to isolate and detect lane markers.

Quadcopter | naoki.io/portfolio/quadcopter **May 2013—May 2014**

- Programmed from scratch in C with an Arduino communicating to a 10DOF IMU (accelerometer/ gyroscope/magnetometer/barometer) for tracking position and orientation to self-stabilize mid-air.
- Researched PID controllers, inertial measurement units, sensor fusion, interrupt service routines, and BLDC motor driving at the Polytechnic Institute of New York University.

Professional Experience:

Bluefin Robotics (Electrical Engineering Co-op) *Quincy, MA* **July—Dec 2017**

- Designed a ground fault detection system to sense and locate faults in the AUV using FFT and pilot signals, implemented in C.
- Designed a robust power interface board to provide power and communication busses between the main computer, peripherals, and smart lithium batteries.

iRobot (Robotics Engineering Co-op) *Bedford, MA* **July—Dec 2016**

- Designed the hardware and software of a smart Li-ion battery charger that charged batteries quickly and efficiently and communicated with its onboard battery management system through SMBus.
- Developed Python scripts for the Roomba 900 to collecting more information about the home using various sensors, which would be conveyed to users in an informative graphical map.

Medtronic (R&D Electrical Engineering Co-op) *Boston, MA* **May—Dec 2015**

- Designed the schematic of a new version of the embedded system that interfaced the robot's computer with peripherals.
- Developed Python scripts to allow users to change display and scaler settings using PySerial.
- Designed schematic and layout for the robot's power distribution system.