

Haowen Shi

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Carnegie Mellon University

B.S. Electrical And Computer Engineering, with Additional Major in Robotics, Class of 2019

Cumulative GPA: 3.73/4.00

Master of Science in Robotics (MSR), Class of 2021

COURSE HIGHLIGHTS

16-889 Adaptive Control & Reinforcement Learning
16-748 Underactuated Robotics
16-711 Kinematics, Dynamics & Control
16-833 Robot Localization & Mapping
15-410 OS Design & Implementation
15-418 Parallel Computer Architecture and Programming
15-440 Distributed Systems
15-462 Computer Graphics
16-385 Computer Vision
16-450 Robotics Systems Engineering
18-349 Intro to Embedded Systems
10-601 Intro to Machine Learning
15-214 Principles of Software Construction
18-330 Intro to Computer Security

SKILLS

Front End:

iOS, Cocoa, Qt-5, HTML5

Embedded Systems:

Real Time Kernel; STM32; NXP i.MX; Arduino; CMSIS-RTOS; FPGA

Computation Acceleration:

CUDA, OpenMP, MPI

Robotics:

ROS, MoveIt, CoppeliaSim

LANGUAGES

Proficient:

C, C++, Python, MATLAB, Java, English, Mandarin Chinese

Comfortable:

Objective C, Swift, Javascript, SystemVerilog, Lua

EXPERIENCE

Apple Inc. Intern

OS Performance (Summer 2018)

I worked on a memory related feature for macOS.

CoreOS Performance Tools & Infrastructure (Summer 2019)

I worked on some improvements of a performance profiling tool.

Biorobotics Laboratory, Carnegie Mellon University.

Research Assistant (May 2017 - Current)

I am working on a line laser scanner under Howie Choset's Biorobotics Lab in joint with Boeing and CMU researchers. I am primarily responsible for structured light 3D reconstruction, calibration, software architecture, system integration and embedded development.

PROJECTS GLIMPSE

For more projects please check my personal website (top right).

Visual Serving for Flexible Robot Manipulators (2020)

In this team project we proposed a method to solve the IK problem for robot manipulators with flexible links. We used visual measurements to continuously estimate and update the robot's kinematic parameters and servo the robot to desired poses using the estimated Jacobian.

"Jolly Roger" - CMU Mechatronic Design Project (2019)

*First Place in final competition, won \$5.5K prize money.

I led a team of 5 to create a fully autonomous electro-mechanical device manipulation robot. I am proud of this project both because of its high complexity and our amazing teamwork. Everyone made critical contributions and we were winners of the final competition.

"Robo Monkey" - Jogging Companion Robot (2019)

In this team project we made a companion robot that could follow a human jogger while carrying items with high speed and precision. My contribution includes software design and integration; adapting a real-time embedded driver to control a high-performance 4WD chassis; a CRC-enabled communication protocol; and sensor signal filters to make the robot operate more smoothly and robustly.

"The Flash" - CMU Mobot Contest (2016)

*First Place among undergraduates, \$1K prize money.

I led a team of 3 to create a field robot that could identify and follow coarse lines painted on concrete road. We created our own vision algorithm which could identify barely visible lines and interpolate the missing parts.