Haicheng Charles Zhao

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Education & Relevant Coursework

Princeton University, 2017 – 2021
Studying Computer Science and Economics
Programming Systems, Microeconomic Theory

Thomas Jefferson High School for Science and Technology, 2013 – 2017
GPA: 4.523 (weighted), 4.0 (unweighted)
SAT (new): 1600
Artificial Intelligence, Parallel Computing, Web & Mobile App Development, AP Micro- & Macroeconomics

Languages & Technologies

General Purpose: Python • Java • C
Web Development: Javascript/ES6 • jQuery • SCSS • React • Redux • Jekyll • Django • Flask
Other: Git • Linux • OpenCV • ROS • LaTeX • MPI • OpenMP • Messenger Platform

Experience

PrepFactory Software Engineering Intern *Summer 2017*
- Collaborated with startup founder to design a UI for an adaptive diagnostic test.
- Developed an algorithm that adapts to the student to quickly estimate a score range and confidence level on the ACT.
- Learned React and Redux over a weekend and then developed a web app implementing this diagnostic test.
- Managed several other interns in developing the test.

TJ IOI Technology and Finance Lead *Fall 2016 – Spring 2017*
- Organized and ran TJ IOI, a seven-hour programming competition for high school students.
- As Technology Lead, created a restricted Linux virtual machine on which participants programmed.
- As Finance Lead, managed a team that contacted companies and acquired over $2,000 for shirts, food, facilities, and prizes.

Senior Computer Team Co-Captain *Fall 2016 – Spring 2017*
- Wrote and gave weekly lectures on algorithms, especially those tested in the USA Computing Olympiad (USACO).
- Held contests and selected teams to participate in programming competitions.

Projects

Epochs: A Time Micromanagement App *Summer 2017 – Present*
- Using React and Redux to develop a web app that allows users to micromanage their time.
- Implementing a Progressive Web App (PWA) with offline capabilities and ability to send notifications using service workers.

AIM Robotics FIRST Robotics Competition (FRC) Team, Lead Programmer *Fall 2016 – Spring 2017*
- Persuaded team to scrap all old code, and designed a structured, modular software framework.
- Implemented accurate self-correcting driving using several layers of feed-forward PID controllers in Python.
- Used PID controllers and computer vision with OpenCV to implement an autonomous phase where the robot could reliably locate a rod, drive to it, and release a gear onto it.
- Won Innovation in Control Award.

Solace: Exploratory Autonomous Vehicle Research Project *Fall 2016 – Spring 2017*
- Built a 1/8th-scale R/C car mounted with various sensors and programmed it using the Robot Operating System (ROS) and Python to drive autonomously to a specified location, through both known and unknown areas.
- Designed novel method for dynamically determining the optimal path through both known and unknown areas by coupling Adaptive Monte Carlo Localization (AMCL) with the Gmapping SLAM algorithm using image stitching.

AlexaBot *Spring 2016 – Summer 2016*
- Developed Facebook Messenger bot that lets a user interact with Amazon Alexa remotely through text rather than speech.
- Wrote bot in Python using Tornado while Messenger Platform was still in beta.
- Bot has had more than 2000 users, and we ensured reliable uptime and quick bug-fixing during its increase in popularity.

Awards & Achievements

2nd Place in VCU High School Programming Contest *March 2017*
Won 2nd place out of 40 teams in this algorithms contest.

MIT Beaver Works Summer Institute *August 2016*
Selected as one of 40 students nationwide to participate in this 4-week program concerning autonomous vehicles. At end of program, selected by faculty as most likely to be an "Inventor of Something Big."

Best Website at HackTJ 2016 *February 2016*
Developed website that teaches Mandarin definitions and pronunciations. Best website out of 120 teams.