Haicheng Charles Zhao

hczhao@princeton.edu | hczhao.me | github.com/czhao39

Education

Princeton University, 2017 – 2021
Studying Computer Science and Economics

Thomas Jefferson High School for Science and Technology, 2013 – 2017
GPA: 4.523 (weighted), 4.0 (unweighted)
SAT (new): 1600

Languages and Technologies

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

Work and Volunteer Experience

PrepFactory Intern *Summer 2017*
- Worked personally with startup founder to design an adaptive diagnostic test. Developed an algorithm that quickly determines an estimated score range and confidence level for a student's performance on the ACT.
- Learned React and Redux over a weekend and then developed a web app implementing this diagnostic test.
- Became a link between the founder, the content team, and the technology team, since I understood the code and could communicate well with everyone.

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 from scratch linking subsystems with commands.
- Implemented accurate, precise self-correcting driving using several layers of feed-forward PID controllers.
- 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 car mounted with various sensors and programmed it using the Robot Operating System (ROS) 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.

Othello AI *Fall 2015*
- Implemented principle variation search (PVS) and created program that played the AI against itself to determine optimal heuristics. Only AI that beat the teacher.
- Went far beyond class assignment requirements and worked on it throughout winter break.

Awards and Achievements

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

1st Place in IDT Programming Contest *March 2016*
Developed a package delivery tracking web app and won $1500 for school, as well as received tablets.

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