

# Haicheng Charles ZHAO

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## EDUCATION & RELEVANT COURSEWORK

**Princeton University, 2017 – 2021**

*Concentrating in Computer Science, with a Finance Certificate*

Algorithms & Data Structures, 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

## EXPERIENCE

**Software Engineer, PrepFactory**

*June 2017 – Present*

- Convinced founder to let me code after learning React and Redux and developing prototype for new feature over weekend.
- Collaborated with startup founder to design a new clean and interactive UI for practice tests, and then developed a web app implementing these practice tests, now used throughout the website.
- Developed an adaptive diagnostic test algorithm that quickly estimates a score range and confidence level on the ACT.
- Managed several other interns in developing the test.

**Technology and Finance Lead, TJ Intermediate Open in Informatics**

*November 2016 – June 2017*

- Organized and ran TJ IOI, a seven-hour high school programming competition in which eight teams competed, for the first time in four years.
- 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.

**Co-Captain, Senior Computer Team**

*September 2016 – June 2017*

- Wrote and gave lectures on algorithms, especially those tested in the USA Computing Olympiad (USACO), at weekly 40-minute meetings.
- Held contests and selected teams to participate in programming competitions.

## TECHNICAL PROJECTS

**Epochs: A Time Micromanagement App**

*August 2017 – Present*

- Use React and Redux to develop a web app that allows users to micromanage their time.
- Implement 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**

*November 2016 – June 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**

*September 2016 – June 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**

*March 2016 – July 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.