

# Zixuan (Vincent) Yao

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## Education

### Johns Hopkins University, GPA 3.94/4.0

Baltimore

WHITING SCHOOL OF ENGINEERING, MSE in Computer Science

Expected Jan. 2021

- *Relevant coursework:* Object-Oriented Software Engineering, Algorithm, Computer Networks, Machine Learning, Deep Learning, Natural Language Processing, Human-Computer Interaction, Human-Robot Interaction

### The Chinese University of Hong Kong, GPA 3.79/4.0

Shenzhen

SCHOOL OF SCIENCE & ENGINEERING, BEng with Honors, First Class in Electronic Engineering

Sep. 2015 - Jun. 2019

- *Relevant coursework:* Distributed & Parallel Computing, IoT, Software Engineering, Operating Systems, Computer Architecture, Microprocessors & Computer Systems, Optimization, Database, Data Mining, Data Structure, Signal & Systems, Communication

### National Tsinghua University, GPA 3.75/4.0

Taiwan

EXCHANGE IN COLLEGE OF ELECTRICAL ENGINEERING & COMPUTER SCIENCE

Sep. 2017 - Jan. 2018

## Internship

### Wayfair Inc., Software Engineer Intern

Revoked due to COVID

Strongly hired but the program was revoked due to the COVID

### QuizHero Organization, Web Development

Feb. 2020 - Aug. 2020

Developed a real-time interactive presentation and quiz web service 🐙 QuizHero

- Developed the **Ajax** based front-end with **Yarn**, **Webpack**, **React**, and **Redux** for middlewares and reducers, parsed markdown to slides and quizzes, supporting real-time quiz interaction between students and instructor
- Implemented **MVC** back-end with **Gradle**, **Kotlin** on **PostgreSQL** and asynchronous job queue with **RESTful** API and **HTTP** protocol, using **DAO** design pattern. Automated system deployment with **Docker** on Heroku and DigitalOcean
- Achieved sharing control and quiz permission control with **Axios/WebSockets**, real-time editing and rendering with **React Context** and **Hooks**, linked GitHub by **PAC4J** and **OAuth** and obtained version control by Git push/pull

### HUAWEI terminal Co., Ltd. Software Engineer Intern

Jun. 2018 - Aug. 2018

Optimized inner search engine and managed customer blog platform

- Addressed the mismatch issue of inner search engine (used by **10000+** engineers globally) by analyzing **10 million+** keywords and **hyper links** between keywords, increased the search success rate by 6.2% based on precision and recall
- Cooperatively resolved **10+** technical problems on the blog system built on Discuz! by PHP and MySQL, such as image not loading

## Research & Project

### Automatic Hybrid Sailboat System Development

May. 2018 - May. 2019

State Joint Engineering Laboratory on Robot and Intelligent Manufacturing

Studied the relation between the maneuverability and energy consumption of an autonomous catamarans sailboat

- Constructed an autonomous catamarans sailboat system with a inboard **Raspberry Pi**, **EVM** and **IMU** sensors, build a web control console with interactive GUI and achieved seamless real-time communication with the sailboat using **Python** and **sockets**
- Tracked the global position of the sailboat by building an image recognition system using **OpenCV** with **0%** loss probability
- Designed an optimized real-time feedback control algorithm using **PID** and **PWM** control according to various attitude data
- **Publication:** Z. Zhang, Z. Yao, Q. Sun et al 🐙 'Energy Optimization Based on Automatic Hybrid Sailboat' ROBIO 2018

### Software Development, Cross-Platform Mind-Map Application: 🐙 BrainLine

Mar. 2019 - May. 2019

Developed a mind-map application by **Qt** in **C++**, using **MVC** design pattern

- Designed Node, Arc classes based on **OOP** principle, overrode virtual methods in basic class according to **polymorphism**
- Expanded functions of view classes by **inheritance** and stored mind-map result in **XML** format for reopen and reediting
- Streamlined **signal-slot** control mechanism to initialize keyboard shortcuts and GUI interaction, supporting arbitrary position of nodes and connection and implemented undo tool bar of unlimited length

### Game Development, ARM based ball game: 🐙 CrazyBall

Apr. 2018 - May. 2018

Developed the game on **ARM® Cortex®-M3 STM32 MCU** with **Keil® MDK-ARM** in **C**

- Integrated the ARM MCU with **Key**, **Buzzer**, **USART**, **LCD** and **Joypad**, handled the IO communication by synchronizing with internal clock and designing proper **interrupt** and **exception** mechanism by register level configuration and development
- Realized ball bouncing by self-implementing real world physical model with a random initial direction
- Implemented easy/hard levels, PvE/PvP mode and reward system

## Skills

- **Programming Languages:** Java, C/C++, Python, SQL, R & Assembly
- **Web Development & Database:** React, Node.js, Javalin, JavaScript ES6, HTML5, CSS, PostgreSQL, SQLite
- **Other Tools & Libraries:** Git, SSH, CLI, Vim, Docker, PyTorch, TensorFlow, OpenCV, Pthread, MPI, CUDA, LaTeX