

# Tongze Wang

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## EDUCATION

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### University of California, Santa Cruz

Major: Computer Science & Engineering

Master of Science, GPA 4.00/4.00

Sep 2022 – Mar 2024

Santa Cruz, CA

### University of California, Santa Cruz

Major: Computer Science

Bachelor of Science, GPA 3.64/4.00

Sep 2018 – Aug 2021

Santa Cruz, CA

(Leave of Absence: Mar 2020 - Mar 2021)

## EXPERIENCE

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### Assistant Specialist (Full-Time Researcher)

University of California, Santa Cruz

Baskin School of Engineering

Apr 2024 – Present

Santa Cruz, CA

- Developed a **Java-based distributed graph processing system** on top of DHT-based P2P overlay networks
- Fine-tuned the system performance by incorporating **concurrent data structures**, **asynchronous tasks** and **parallel stream processing** designs in existing Java code base
- Improved the **threading model** in network stacks by migrating to **Netty** - an event-driven I/O framework
- Wrote multiple test cases using **JUnit** to improve code coverage during testing in **CI** pipeline
- Created multiple automated scripts to deploy the system and compare its performance against the self-hosted **Apache Spark** cluster and **Apache Giraph** on top of the **Apache Hadoop** cluster on **AWS**

### Front-End Engineer Intern

Kuaishou Technology Co., Ltd

Jun 2020 – Sep 2020


Beijing, China

- Implemented new web user interfaces for internal talent pool management and hiring websites
- Worked with **Swagger** / **OpenAPI** specification and internal UI design tool similar to **Figma**
- Developed multiple reusable **React.js** components using **TypeScript** and **React Hooks**
- Built features with **responsive design**, **internationalization (i18n)** and **accessibility (a11y)** in mind
- Fixed several bugs using **breakpoints** and **TypeScript source maps** through **test-driven development** processes like smoke testing and integration testing with QA team
- Performed **code review** on others' code when merging different development branches in **Git**
- Used tools like **ESLint**, **Jest** and **Jenkins** in **CI / CD pipelines** to ensure code quality and deploy

## PROJECTS

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### Shoe Classifier | *TensorFlow, Ant Design, Chart.js, React.js*

 [wtongze/shoe-classifier](https://github.com/wtongze/shoe-classifier)

- Built a web app to classify the brand of shoes in images using computer vision
- Trained a **Convolutional Neural Network model from scratch** using **TensorFlow** and Kaggle datasets
- Created an automated pipeline to expand training datasets using image augmentation techniques
- Used grid-search to fine-tune the hyper-parameters to avoid over-fitting and improve accuracy
- Ported the trained model to **TensorFlow.js** to allow it to be **run within the browser**
- Built a web interface with data visualization using **Ant Design** and **Chart.js**

### Tokyo TravelKit | *SQLite, ORM, C++, Node.js, Express.js*

 [wtongze/tokyo-travelkit](https://github.com/wtongze/tokyo-travelkit)

- Built a **full-stack** multi-language web-based trip planner with **Material Design**
- Wrote a **RESTful** API service based on **Express.js** and **TypeScript** using a customized boilerplate
- Stored all routing data in **SQLite** and accessed them through Object-Relational Mapping (**ORM**) frameworks
- Implemented CPU-intensive algorithms in **C++** to solve single-source shortest path problems and used them as a **Native Add-on for Node.js** to boost performance

## TECHNICAL SKILLS

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**Languages:** Python, C++, Java, Kotlin, JavaScript, TypeScript, HTML5, CSS3, Rust, Swift

**Frameworks:** React.js, Vue.js, Express.js, Three.js, Tailwind CSS, Sass, Spring

**Developer Tools:** AWS, GCP, Docker, Amazon S3, Amazon Lambda, PostgreSQL, MongoDB, Redis, Linux

**Libraries:** TensorFlow, PyTorch, pandas, NumPy, Matplotlib