

# Hao-Yi (Karen) Tu

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## Professional Experience

### ByteDance Inc.

Full-Stack Software Engineer

San Jose, CA

Sep 2023 – Present

- Built a project-management workspace using **TypeScript/React** and **Go (Kitex RPC)**, supporting **50+ users** and **10+ cross-region workflows**.
- Shipped **AI-assisted timeline** and **decision-node automation**, collapsing multi-step triage into one action and reaching **10% adoption**.
- Resolved cross-region service failures by analyzing **logs** and **metrics**, improving reliability for **24/7 global operations**.
- Led **front-end design reviews** and mentored engineers on **React architecture** to independently ship features.
- Strengthened **system/code health** through proactive reviews, catching production issues early.

### Johnson Controls Inc.

Software Engineering Intern

Campbell, CA

June 2022 – August 2022

- Built an app-store web app for smart-home panels using **TypeScript**, **React**, **Express.js**, and **PostgreSQL**, enabling dealers and internal teams to distribute Android apps.
- Implemented **10+ REST APIs** for versioning, file validation, and uploads; collaborated with a 4-engineer team via **Git feature-branch** workflows and code reviews.
- Improved backend maintainability using **Sequelize ORM** and **Ajv JSON-schema validation**, refining data integrity and API reliability.
- Containerized client, API, auth, and DB services with **Docker** to streamline local development and testing.

### Trend Micro Inc.

Sr. Software Engineer

Taipei, Taiwan

June 2019 – August 2021

- Helped 7,000+ business customers activate and track the usage of their solutions by developing the Activation Service and credit-based licensing service on Trend Micro's large-scaled application using **React** and **Redux**.
- Migrated multi-page to single-page application boosting activation success rate by 120% in 4 months.
- Led the design and implement internal User Behavior Report dashboard which enabled executives and analytics teams to make data-driven decisions on licensing business and saved the manual time of work over 60%.
- Designed and implemented a platform with features of data visualization and role-based access control (**RBAC**) advancing EU and NABU teams channel business to target on 3.49 times higher potential revenue growth customers.
- Reduced the time of first contentful paint by 50% through paging loading and cache.
- Ensured up to 100% coverage for new modules by completing unit tests in **Jest** and **React Testing Library**.
- Won 2nd place among 90 teams and 1,500 employees in an internal Customer Success and **DevOps** contest.
- Won 1st place among 20 teams in the Information System (IS) DevOps Camp.

## Skills

**Languages:** TypeScript, JavaScript (ES6+)

**Frontend/Backend:** React, Redux, HTML/CSS, Express, REST, GraphQL, RPC, PostgreSQL, MongoDB, Go (Kitex)

**Systems/Tools:** Jest, React Testing Library, Ajv, ESLint, Docker, CI/CD, logging/monitoring, performance profiling, diagnostics/system health

## Education

### Carnegie Mellon University

Master of Science in Software Engineering

Mountain View, CA

January 2022 – May 2023

- Selected Coursework: Software Design and Architecture, Browser Security

### New York University, Tandon School of Engineering

Preparatory Course for Graduate Studies in Computing (NYU Tandon Bridge)

Brooklyn, NY

January 2021 – July 2021

### National Taiwan Normal University

Bachelor of Arts, History

Taipei, Taiwan

September 2012 – January 2017

## Projects

### Full Stack Engineer, Emergency Social Network – Web Application Project

January 2022 – May 2022

- Architected a scalable web application for emergency medical assistance, with features of login, permission management, forum, chat, searching, performance measurement, and data visualization using **Express.js**, **Mongoose**, and **Heroku**.
- Wrote **unit** and **integration tests** using Jest and Axios and achieved 96% test code coverage.
- Improved the quality score by 40% by incorporating a **static analysis** tool in development to ensure code quality.
- Awarded 5 out of 10 badges among 10 teams, including Best Code Quality, Great UI, Great Collaboration, Best REST API Documentation, and Use of Design Patterns from 40 students.