

# Tongze Mao

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## WORK

### SupTech – Full-Stack Software Engineer & Team Lead

Apr 2024 – Apr 2025

- Led four engineers to design, develop, and release Consumer & Technician mobile apps (Flutter, iOS & Android) on a micro-service architecture, reducing customer-support workload by 85%.
- Integrated Stripe Connect (instant payout + escrow), reducing payout time from T+7 days to real-time and lifting first-time technician onboarding 35%.
- Added Haversine-based geo-search and live ETA tracking, lowering order cancellations 28% and improving arrival accuracy to within 100m.
- Built end-to-end-encrypted in-app chat (RSA-2048 handshake + AES-GCM channel) and launched a multilingual UI, cutting translation-related tickets 60%.
- Released an AI-powered repair assistant using OpenAI GPT-4 API for step-by-step diagnostics, autonomously resolving 30% of tier-1 tickets and cutting mean troubleshooting time by 45%.
- Migrated from monolithic Node.js/Firebase to containerised Java Spring Boot micro-services on MySQL, trimming median API latency 55% and enabling zero-downtime rolling releases with Docker.
- Implemented a unified WebSocket gateway that multiplexes order-status events, in-app chat, and Stripe payment updates; negotiates JWT authentication, heartbeat keep-alives, and auto-reconnect, while sustaining 10K concurrent clients with latency within 150 ms.
- Engineered a state-machine order workflow with push notifications, cutting dispatch SLA 70% and retiring manual Excel trackers.
- Championed TDD across a 380 k-line Dart monorepo, attaining 96% unit + integration coverage and running nightly regressions on GitHub Actions.
- Drove Agile/Scrum adoption and CI/CD (GitHub Actions), doubling sprint velocity and reaching bi-weekly production releases.

### TZAppify – Founder & Principal Engineer

Jan 2024 – Present

- Designed, engineered, and published 8 SwiftUI apps on the iOS and iPadOS App Store; flagship DoneTodo ranked 18th in App Store; SparkDays (112th) and WayLater (169th) entered the top 200 within 10 days.
- DoneTodo – 24-hour colour-grid planner with dual-layer Todo/Done rendering, 50-level undo/redo, real-time statistics, and background sync via iCloud + Core Data; cold-start within 1 s, interaction latency below 100 ms.
- SparkDays – Habit tracker with rule-based coin economy, streak bonuses, and in-app reward store; Combine-driven JSON layer sustains 60 FPS while consuming below 2% daily battery on A-series devices.
- WayLater – Date-locked time-capsule journal supporting photo attachments, writing prompts, local notifications, and threaded comments; custom Codable archives enable offline use and future iCloud migration.

### The Chinese University of Hong Kong – Research Intern, Stereo 3D Reconstruction

Jun 2023 – Aug 2023

- Automated a Python/MATLAB pipeline that processed 80 GB of stereo endoscopic footage 65% faster, generating aligned frames, disparity maps, and COLMAP poses.
- Authored technical documentation and weekly briefs on NeRF and point-cloud techniques, enabling five new researchers to reproduce results within 24 hours.

## SELECTED PROJECTS

### Progress-Tracker API – Time-Allocation Backend (Java / Spring Boot / MySQL / Jacoco / Gradle)

- Built a multi-tenant REST backend with JWT authentication and pluggable data-store adapters; maintained 96% line coverage with JUnit 5, Mockito, Jacoco, and GitHub Actions.

### Goshsha App – AR shopping (React Native - iOS & Android / Firebase)

- Redesigned UI/UX and barcode-triggered AR overlays for a Sephora pilot, reducing scan-to-render time by 40%; managed cross-platform deployment via Expo EAS.

### HowDidI App – Paid résumé-sharing platform (Swift - iOS / Firebase)

- Led three engineers to build a résumé-sharing marketplace with real-time Firestore sync and full Swift Concurrency adoption.

### CheckersAI – Alpha-beta search agent (Python)

- Implemented an alpha-beta agent with transposition tables and Zobrist hashing, achieving an 82% win rate over the baseline.

### Spotify Browser – High-performance music streaming web app (Angular / Node.js)

- Developed a responsive music-streaming PWA with OAuth 2.0, lazy-loaded modules, and first contentful paint within 200 ms (Lighthouse 95).

## EDUCATION

### University of California, Irvine (UCI)

Sept 2020 – Jun 2024

Bachelor of Science in **Computer Science** - Specialized in Intelligent Systems

Bachelor of Science in **Informatics** - Specialized in Human-Computer Interaction

Minor in **Statistics**

GPA: 3.94 / 4.00

Cum Laude • Dean's Honor List • Top 5% of class

## TECHNICAL SKILLS

**Languages & Frameworks:** Java • JavaScript/TypeScript (React, Angular, Node.js) • Swift/SwiftUI • Dart/Flutter • Python • C++ • SQL

**Front End & Mobile:** React • Angular • Flutter (iOS & Android) • iOS SDK (UIKit, StoreKit, Core Data) • React Native • Figma

**Back End & Cloud:** Spring Boot • Firebase • MySQL • MongoDB • Docker • WebSocket • REST & GraphQL APIs

**Testing & QA:** XCTest; XCUITest; Flutter integration tests; Jest; Playwright; Postman; coverage + regression pipelines

**DevOps & Tooling:** Git • GitHub Actions • Fastlane • Jira • Stripe APIs • Firebase Crashlytics • Agile/Scrum