

Taiwei Cui

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Technical Skills

Languages: Kotlin, Swift, Java, TypeScript, Python, C++, SQL

Mobile / Frontend: Android, iOS, SwiftUI, React, Next.js, Vite, MVVM, CameraX, AVFoundation, CoreLocation

Backend / Data: Spring Boot, Spring Security, FastAPI, SQLAlchemy, RabbitMQ, Redis, MySQL, PostgreSQL, MinIO

Infrastructure / Tooling: Docker, Docker Compose, Kubernetes exposure, Playwright, pytest, JUnit, Linux, Git

Graphics / Research: OpenGL, SDL2, ImGui, OpenCV, Eigen

Education

Northeastern University

Sep 2023 – Dec 2025

M.S. in Computer Science, GPA: 3.95

Boston, MA

- Relevant coursework: Advanced Algorithms, Computer Graphics, Pattern Recognition & Computer Vision, Data Mining Techniques, Natural Language Processing

Nanjing Agricultural University

Sep 2019 – Jun 2023

B.S. in Computer Science, GPA: 3.82

Nanjing, China

Publication

- Peng Jin, Yuxuan Liu, **Taiwei Cui**. “Gradient Penalty Cross Pseudo Supervision for Semi-Supervised Medical Image Segmentation.” *ISBI 2025*.

Experience

Software Engineer

Nov 2023 – Nov 2025

Intuit *San Jose, CA*

- Built and maintained Java Spring Boot microservices and REST APIs for data-heavy workflows, with emphasis on correctness, auditability, and secure-by-default handling of sensitive data.
- Improved service reliability with structured logging, metrics, and defensive patterns including timeouts, retries, and idempotent request handling across distributed service paths.
- Supported containerized delivery and release quality with Docker, Kubernetes, CI automation, unit and integration testing, and code reviews across a distributed engineering team.

Software Engineering Intern

May 2024 – Aug 2024

Haohui Network Development Company

- Developed Java Spring Boot controller and service modules for address-management and profile workflows, supporting validated CRUD behavior in a consumer-facing web application.
- Worked with frontend engineers on REST API contracts, request and response conventions, and release-test scenarios so integration issues were easier to isolate and fix.
- Resolved edge-case bugs in validation and endpoint handling, improving backend handoff quality and reducing repeated clarification during testing.

Software Engineer

Jul 2020 – Jul 2021

Tencent *Nanjing, China*

- Developed backend modules and REST APIs in a high-traffic environment, implementing service contracts and data-access layers with attention to SQL schema design and index usage.
- Addressed traffic spikes with asynchronous processing patterns, message queues, and caching strategies to keep request paths more stable under bursty workloads.
- Improved engineering quality through automated testing, CI practices, production monitoring, and cross-functional collaboration in a remote and hybrid team setting.

Research Assistant, Computer Graphics Lab

Mar 2025 – Jul 2025

Northeastern University

- Built reusable C++ and Python graphics tools with ImGui interfaces for toric-tile design and tile-to-image workflows, tightening the loop between geometry generation and visual inspection.
- Connected parameter editing, rendering, and inspection steps into a workflow that reduced manual setup for lab experiments and made visual artifacts easier to debug.
- Documented implementation trade-offs and investigated rendering issues in recurring reviews, improving reproducibility for ongoing graphics work.

Selected Projects

DashCam (Android + iOS)

Personal Project

Kotlin, Swift, SwiftUI, CameraX, AVFoundation, CoreLocation

- Built cross-platform dashcam applications for Android and iOS with continuous recording, loop-buffer retention, protected clip flows, and speed and location overlays for mobile capture scenarios.
- On Android, used CameraX, foreground-service patterns, fused location updates, and state-driven recording control to keep capture behavior resilient across lifecycle changes and long-running sessions.
- On iOS, coordinated AVFoundation capture, storage monitoring, recovery handling, and CoreLocation-backed metadata in a SwiftUI and MVVM-style architecture.

ERP Microservices Platform

Personal Project

Java, Spring Boot, Spring Security, PostgreSQL, RabbitMQ, MinIO, JUnit

- Implemented a multi-service ERP backend covering auth, inventory, items, orders, tasks, documents, and notifications, with REST APIs and service boundaries structured around business modules.
- Integrated Spring Security and OAuth2 resource-server patterns with PostgreSQL, RabbitMQ, and MinIO to support authenticated APIs, asynchronous document events, and file-backed workflows.
- Added JUnit and Spring Boot test coverage to key modules and kept the controller-service-repository structure maintainable for debugging cross-service edge cases.

MyBook

Personal Project

Python, FastAPI, SQLAlchemy, PostgreSQL, React, TypeScript, Docker Compose, pytest

- Developed a full-stack authoring platform for structured long-form writing workflows, including project and chapter management across planning, drafting, review, and publishing stages.
- Organized the backend around modular orchestration, memory, and provider-integration services, making a broad AI-assisted workflow easier to run, extend, and debug locally.
- Built React and TypeScript control surfaces for runtime configuration and workflow inspection so multi-step generation flows were easier to operate and demonstrate.

AudioChattingBot

Personal Project

Python, FastAPI, React, TypeScript, Redis, PostgreSQL, MinIO, Docker Compose

- Built a multi-service media workflow platform with a FastAPI backend, React and Vite frontend, and asset and job orchestration spanning voice chat, transcription, and text-to-audio utilities.
- Connected typed APIs, storage flows, and service startup behavior so the system could recover state, manage assets, and support cross-service debugging in a local development stack.
- Organized the repository as a service-oriented local stack rather than a single demo script, making it easier to explain module boundaries, dependencies, and runtime responsibilities.

Online Ordering Platform

Personal Project

Java, Spring Boot, MyBatis-Plus, MySQL, Redis, JUnit

- Developed a Spring Boot ordering system with layered controller, service, and mapper design for customer and admin workflows, using MySQL and Redis-backed business APIs.
- Combined backend APIs with bundled web assets to create a defendable end-to-end business application that is easy to explain at the level of data flow, module boundaries, and request handling.

Additional Technical Work

- **Beijing Fushengji:** Built a C++17 desktop simulation and trading game with SDL2, OpenGL, ImGui, and API-backed event flows.
- **ForWin:** Developed a FastAPI-based publishing and governance platform using Playwright, Qdrant, MinIO, Docker Compose, and dense automated tests.
- **Repository Breadth:** Maintained a portfolio spanning Java backends, TypeScript UIs, Python orchestration services, C++ graphics projects, Kubernetes manifests, and local developer tooling.