

Yuan Zhou

Senior Full-Stack & Applied AI Engineer

California · U.S. citizen · No sponsorship required

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Senior Full-Stack & Applied AI Engineer with industry engineering experience since 2014. Independently designed, implemented, integrated, and delivered GolfJoy software through a completed project-based engagement using AI development tools. Selected work spans regional commerce, venue operations, a native sensor app, and content management. Earlier work includes distributed backend systems, document AI, local inference, and computer vision prototypes. M.S. Computer Science, Tsinghua University; co-first author of published Android systems security research and former U.S. Army avionics specialist.

PROFESSIONAL EXPERIENCE

GolfJoy

2026 · Completed project-based engagement

Project lead & sole developer

Product evidence and case study GolfJoy Play on Google Play Company accomplishment letter (Oct 9, 2026)

- **Engineering ownership:** Served as project lead and sole developer for regional storefronts, venue operations, the native application, and CMS. Independently handled architecture, implementation, integrations, testing, and delivery with AI development tools and engineering review. [Next.js, React, TypeScript, Payload CMS, PostgreSQL]
- **Commerce, CMS, and regional releases:** Built the China storefront with customer accounts and payments and the CMS supporting regional content operations. Implemented signed CMS snapshots, atomic deployment, and rollback so releases could run independently of a live cross-border database connection. [Ed25519, Tencent COS, Docker, Release Engineering]
- **Commerce and applied AI:** Built the U.S. commerce preview with guided product selection, model comparison, an interactive 3D simulator builder, Shopify checkout, and webhook reconciliation. Added an AI assistant using approved sources, response guardrails, and human handoff. [Shopify, OpenAI, RAG, Webhooks]
- **Venue platform:** Built Play booking and venue management for live venue operations. Implemented calendars, membership pricing, hour packs, waivers, payments, refunds, access control, device ingestion, and operational dashboards with tenant-scoped permissions. [Stripe, RBAC, Multi-Tenant SaaS, IoT]
- **Native integration:** Delivered the GolfJoy Play Android app published on Google Play, with multilingual interfaces, live shot metrics, landscape layouts, placement guidance, and English shot readout. Integrated Bluetooth discovery and Wi-Fi sensor data through Java/Swift integrations and a shared C++ protocol core. [Capacitor, Java, Swift, C++, Bluetooth]

Multiverse Labs

Jul 2021–Mar 2024; returned Nov 2024

Senior Full-Stack Engineer · Remote

- **Distributed backend:** Architected a deterministic decision engine ingesting real-time market data over TCP/WebSocket. Implemented multi-shard execution on GCE, TTL-based deduplication, daily reconciliation, Firestore audit trails, auto-healing VM topology, and Prometheus/Grafana monitoring. Evaluated changes through rolling out-of-sample windows with fee, slippage, and drawdown gates. [Python, TCP/WebSocket, Prometheus, Grafana, Docker, GCE, Firestore, SQLite]
- **Local inference:** Built a local LLM platform for offline operation on Apple Silicon. Designed a three-service architecture with llama.cpp inference, a FastAPI backend, and SvelteKit frontend, plus ChromaDB retrieval, model switching, and WebSocket streaming. Used Metal GPU acceleration and local service communication. [Python, FastAPI, SvelteKit, ChromaDB, WebSocket, llama.cpp]
- **Transaction recovery:** Engineered mempool monitoring and transaction recovery tooling for a compromised Ethereum account. Used WebSocket pending-transaction detection, fee-aware counter-transactions, and Flashbots private relay integration. [Python, TypeScript, Flashbots, WebSocket, ethers.js]
- **Document intelligence:** Delivered a document intelligence platform with upload, retrieval, merge, and chat workflows. Built dual embedding pipelines, Firestore knowledge bases, Cloud Storage indexing, administration controls, and authenticated uploads through Google OAuth. [React, GCP, Firestore, Cloud Storage, OAuth]
- **Clinical AI:** Delivered an AI clinical assistant for Tan Tock Seng Hospital using AWS Lambda, DynamoDB, Bedrock, and API Gateway. Built chat history, sentiment analysis, session management, and deployment tooling in a modular TypeScript codebase with automated tests. [TypeScript, AWS Lambda, DynamoDB, Bedrock, CI/CD]
- **Staking infrastructure:** Led design and delivery of an Ethereum staking platform spanning Solidity contracts, WalletConnect/MetaMask, a Next.js frontend, and Firestore. Deployed an ARM Linux staking device with firewall configuration and uptime monitoring. [Next.js, Solidity, Firestore, ARM Linux]
- **Contract tooling:** Built an NFT deployment and management platform with React Native and Expo, ERC-721 contracts and ERC721A batch minting, IPFS uploads, Firebase Cloud Functions, Hardhat contract tooling, and a management CLI. [React Native, TypeScript, Solidity, Firebase, Hardhat, IPFS]

- **Consumer application:** Built a TON card collection game with AEON payments, pack purchasing, rarity logic, forging, fragments, referrals, and TON Connect authentication, using React, TypeScript, and Firebase Cloud Functions. [React, TypeScript, TON, Firebase, Cloud Functions]

The Venetian Resort Las Vegas

Apr 2024, Oct 2024

Digital Innovation Engineer · Las Vegas, NV

- **Computer vision prototype:** Designed and implemented a YOLOv10 proof of concept for blackjack table digitization and playing-card recognition. [Python, YOLOv10, PyTorch]
- **Training and evaluation:** Generated annotated training frames and evaluated card recognition on recorded camera feeds. This was a feasibility prototype, not a production casino deployment. [Computer Vision, Dataset Generation]
- **Event processing:** Connected detections to blackjack event logic and SQLite persistence, recording hit, stand, double, and split actions for downstream analysis. [Python, SQLite]

U.S. Army

Jan 2016 – Jan 2017

AH-64 Apache Armament / Electrical / Avionic Systems Repairer (MOS 15Y) · Fort Eustis, VA

- Completed AH-64 avionics training, received an Honorable Discharge and the Sky Master commendation, and completed an SSBI background investigation during service.
- Maintained and troubleshoot mission-critical avionics, fire control systems, weapon management systems, and electrical subsystems on the AH-64D and AH-64E Apache under strict maintenance protocols and flight safety standards.

arcPI

Jun 2014 – Jan 2016

iOS & Android Engineer · Denver, CO

- Built and shipped native iOS and Android applications with Swift, Objective-C, Java, and Kotlin and supported PHP, MySQL, and MongoDB backend services serving university community users. [Swift, Objective-C, Java, Kotlin, PHP, MySQL, MongoDB]

RESEARCH & CERTIFICATIONS

JNI Global References Are Still Vulnerable: Attacks and Defenses · Co-first author. IEEE TDSC 19(1), pp. 607–619 (2022). Author manuscript posted May 1, 2024. Read manuscript.

Developed JGREAnalyzer for cross-language analysis and validation of Android resource-exhaustion flaws. The paper reports 21 vulnerable interfaces across 12 of 148 Android 10 system services; nine were exploitable without permissions.

Cosmos SDK Developer, Interchain Developer Academy, 2023.

EDUCATION

Tsinghua University · M.S. Computer Science · 2017 – 2020

Systems security research

University of Denver · B.S. Computer Science · 2011 – 2014

Completed a 4 year program in 3 years

TECHNICAL SKILLS

Languages: TypeScript, Python, Java, C/C++, Go, Rust, Solidity, Swift, Kotlin

Frontend & Real-Time: React, Next.js, SvelteKit, React Native, Redux, WebSocket, Tailwind CSS, Framer Motion, Progressive Web Apps

Backend & Infra: Node.js, Express, FastAPI, Flask, Django, Payload CMS, Kafka, TCP/UDP, Docker, Kubernetes

Cloud: AWS (Lambda, DynamoDB, Bedrock, S3), GCP (Cloud Run, Functions, Firestore, Storage), Azure (Cognitive Search, OpenAI), Vercel, Tencent Cloud (COS)

AI/ML: OpenAI, LangChain, PyTorch, TensorFlow, YOLOv10, HuggingFace, ChromaDB, llama.cpp, Metal GPU Acceleration

Security & Ops: Prometheus, Grafana, OAuth 2.0, Multi-Tenant RBAC, Ed25519, Static Analysis, Android AOSP Security, CI/CD, Firewall Management

Database: PostgreSQL, MongoDB, Firestore, SQLite, MySQL, Redis, InfluxDB, GraphQL

Commerce: Shopify, Stripe, Alipay, WeChat Pay, Webhook Reconciliation