Xuanyou Liu

San Francisco Bay Area, CA
+1 (669) 325-7160 • joshua1lxy@gmail.com
linkedin.com/in/xuanyou-liu, github.com/JoshLiu111

Full-stack and AI engineer, MS Computer Science candidate at Northeastern University (expected May 2027). Builds and deploys production-grade web and LLM applications end to end with TypeScript, React/Next.js, Python/FastAPI, Node.js and PostgreSQL, backed by automated testing and CI: 1,600+ tests across two live platforms. Built an LLM analyst whose every number must cite and match a verified calculation. Seven years in finance, investment and operations before software, so I start from the user's real problem. Uses Claude Code daily for agentic development. Authorized to work in the US; no sponsorship required.

Technical Skills

- **Languages**: TypeScript, JavaScript, Python, SQL.
- **Frontend**: React 19, Next.js 16, Tailwind CSS, shadcn/ui, responsive design.
- **Backend & Data**: Node.js, FastAPI, REST APIs; PostgreSQL, Drizzle ORM; numpy, pandas, scipy.
- **AI & LLM**: LLM application development with the Claude API; grounded, verifiable LLM output; AI cost and quota metering; agentic coding with Claude Code.
- **Testing & DevOps**: pytest, Vitest, Playwright (e2e), contract tests; GitHub Actions CI; Git; Vercel, Neon.
- **Security & Auth**: OAuth 2.0 / Google OIDC, Better Auth, AES-256-GCM encryption with HKDF key derivation, hashed session and invitation tokens.

Projects

- **Sextant: Financial Analytics Platform with a Verifiable AI Analyst** **GitHub**
  sextant.vercel.app *Nov 2026*
  - Built and deployed a full-stack platform with 8 analytics tools: Next.js/TypeScript front end and a Python/FastAPI compute service, running as two services in one Vercel project on PostgreSQL (Neon).
  - Designed verifiable AI analysis with the Claude API: every number the model writes must cite a calculation ID and is checked against the computed value for precision, unit and sign; uncited figures are flagged in the UI.
  - Built a concurrency-safe AI quota and cost ledger with PostgreSQL advisory locks; secured bring-your-own API keys with AES-256-GCM and sign-in with replay-protected Google OIDC.
  - Implemented numerical methods from first principles in Python (options pricing, GARCH by maximum likelihood with a custom optimizer, VaR backtesting, factor regressions) and integrated six public data APIs, including SEC EDGAR and FRED.
  - Wrote 1,100+ automated tests (pytest, Playwright); CI runs the e2e suite against 10 fake upstream servers and a real PostgreSQL instance for deterministic builds.
- **Expense Splitter: Multi-Currency Group Expense App** **GitHub**
  expense-splitter-fawn.vercel.app *Nov 2026*
  - Built a multi-user web app with Next.js, TypeScript, PostgreSQL, Drizzle ORM and Better Auth: equal, exact, percentage and share-based splits across currencies, plus a no-signup guest mode.
  - Stored money in integer minor units with deterministic leftover-cent allocation so balances always sum to zero; implemented debt simplification that settles a group in at most n-1 payments.
  - Designed one framework-free domain core behind two storage backends (PostgreSQL and sessionStorage), both passing the same 29-case contract test suite; about 510 tests (Vitest, Playwright), Lighthouse 98-100.

Professional Experience

- **Yunnan State Farms E-Commerce Co., Ltd.** — **Kunming, China**
  Head of Business Innovation Center — *Mar 2021 - Jun 2024*
  - Led a seven-member team in enterprise digitization initiatives, including a $3.6M integrated supply-chain platform.
  - Reduced operating costs by 40% through business process re-engineering, outsourcing non-core functions and restructuring high-cost core functions through strategic partnerships.
  - Ran data-driven cost-benefit analysis and investment evaluation for technology initiatives and business-process improvements.
- **Yunnan Provincial Energy Investment Group Co., Ltd.** — **Kunming, China**
  Investment Manager / Assistant to the General Manager — *Nov 2018 - Mar 2021*
  - Owned a RMB 15M food-processing plant from zero to production: built the financial model and feasibility study that won parent-company approval, then ran the build-out across shareholders, regulators and suppliers.
  - Managed tendering, installation and trial runs of 44 equipment units across 3 production lines at about 10% cost savings.
  - Built the procurement system for 116 raw materials from scratch and redesigned the workflow from 11 to 8 steps, cutting cycle time by 33% (15 to 10 days).
- **Zhongshenzhonghuan Certified Public Accountants** — **Kunming, China**
  Auditor — *Mar 2017 - Nov 2018*
  - Performed audit work on the manufacturing and R&D center of a leading pharmaceutical company's IPO; managed asset verification for a bank's equity restructuring, analyzing large credit-account datasets.
- **LanShi Business Consulting** — **Kunming, China**
  Financial Consulting Specialist — *2014 - 2017*
  - Provided business-model and financial consulting to client companies.

Education

- **Northeastern University** — **San Francisco Bay Area, CA**
  MS, Computer Science — *Sep 2024 - May 2027*
  Relevant coursework: Data Structures & Algorithms, Database Management Systems, Cloud Computing, Web Development, Object-Oriented Design, Software Engineering, Computer Networking.
- **Swinburne University of Technology** — **Australia**
  Master of Professional Accounting — *2013 - 2014*
- **Swinburne University of Technology** — **Australia**
  Bachelor of Commerce (Accounting) — *2009 - 2013*

Certifications

- **ACCA Member** – Association of Chartered Certified Accountants (admitted Oct 2023).
- **AI Coding Crash Course Workshop** – AIhero (Nov 2026).

Languages

- English (professional working proficiency), Mandarin Chinese (native).