

Ziyi (Richard) Zhu

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Profile

AI-native technical builder with daily hands-on experience across Claude Code, Codex, and Gemini. Builds full-stack LLM applications, batched extraction pipelines, and agentic workflows. Northwestern Physics + Legal Studies double major bringing rare domain depth to AI implementation in regulated, high-stakes environments.

Technical Skills: Python, JavaScript, Node.js, Next.js, React, FastAPI, Supabase, SQL, JSON schemas, Git.

AI / LLM Systems: Claude, OpenAI, Gemini, RAG architectures, vector storage, prompt engineering, batched LLM extraction, agentic workflows, model-output evaluation.

Education

Northwestern University - Evanston, IL

B.A. in Legal Studies and Physics; Minor in Classics; GPA 3.6/4.0

Sep 2023 - Jun 2026

AI Systems and Technical Projects

Honors Thesis: Judicial Relief in Seventh Circuit Criminal Appeals - Evanston, IL

Researcher / Data Analyst

Sep 2025 - Mar 2026

- Built a production-grade batched LLM extraction pipeline using OpenAI API, structured outputs, and multi-pass validation, processing 1,850+ unstructured federal judicial opinions and reducing approximately 400 hours of manual review to under 2 hours.
- Designed schema-enforced JSON extraction with audit-trail validation; benchmarked output quality across 12 model configurations and 15 schema iterations, achieving 95%+ accuracy against a manual review baseline.
- Implemented hierarchical Bayesian GLMM analysis for inferential modeling, finding that institutional constraints and procedural factors explain most observed variation in case outcomes.

Book of Changes Studio - Chicago, IL

Full-stack AI Developer

Oct 2024 - Present

- Built and deployed a bilingual AI interpretation platform using Next.js, FastAPI, Supabase, and OpenAI API, normalizing 1,356 curated scholarly texts into a deterministic 450-slot retrieval layer for source-linked outputs.
- Designed AI follow-up chats with prompt controls, transcript logging, token telemetry, and persistent cloud history to support auditable, low-hallucination interpretive workflows.

Reizentraj - Chicago, IL

AI Developer

Sep 2025 - Present

- Built a Deck.gl geospatial analytics platform for multi-year Google Timeline data, with timezone reconstruction, country/city matching, Python ingestion, FastAPI, Vercel/Render upload flow, and an iOS companion app in development.
- Drove independent end-to-end development using AI coding assistants across data analysis, API layer, frontend visualization, and production hardening.

Experience

Federal Defender Program, N.D. III. - Chicago, IL

Mitigation Intern, selected as sole undergraduate intern

Jun 2025 - Aug 2025

- Spearheaded the office's first GenAI adoption initiative; benchmarked Claude, ChatGPT, and legal-specific AI tools across federal defense contexts against confidentiality protocols and office-specific requirements; delivered a 41-page roadmap and 60-minute live demo of case-analysis workflows to senior office leadership.
- Authored a 17-page sealed mitigation memorandum cited by the sentencing judge, contributing to a 45 percent sentence reduction below the Sentencing Guidelines; conducted client interviews and synthesized 1,500+ pages of records, testimony, and social science research.
- Led a 72-hour emergency housing intervention for a newly released client with no viable placement options; executed 140+ calls and emails across regional halfway houses, shelters, and social-service providers.

Industrial and Commercial Bank of China (ICBC) - Beijing, CN

Investment Banking Intern

Aug 2024 - Sep 2024

- Built a Python workflow to audit operational claims from 10 water utility companies against Bureau of Statistics environmental and infrastructure datasets, flagging discrepancies for diligence review.
- Co-authored investment committee memos evaluating regulatory risk on 3 export-heavy semiconductor startups, stress-testing timelines and revenue assumptions against U.S. market data and export-control trends.

Languages & Interests

Mandarin native; Japanese N3. Astrophotography, tennis, cooking, road trips.