Thomas Guo

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EDUCATION

The University of Chicago **Chicago, IL**
B.S. in Computer Science and Statistics GPA: 4.0/4.0 Expected, 2027

TECHNICAL SKILLS

Language: Python, Java, R, C/C++, SQL, JavaScript, Swift, Bash, PowerShell, XML, TypeScript, Go, HTML
Tools: Springboot, ORM-Hibernate/Mybatis, Micro Services, Flask, Django, Pytorch, JUnit, JMeter, SplunkReact.js, Vue.js, Kafka, RabbitMQ, nginx, Redis, CI/CD pipelines, Docker, Jenkins, MATLAB, Kotlin, REST API/SOUP/RPC, Jira, Kubernetes, GraphQL, .Net, Swift, Scala, Terraform, Node.JS, Angular, Snowflake, PowerBI, Arduino, Qt
Database and Cloud Services: MySQL, PostgreSQL, SQLite, MongoDB, DynamoDB, AWS, GCP, Microsoft Azure

RELEVANT EXPERIENCE

Q2 Software **Austin, TX**
Software Engineer Intern, Fraud Tech Team June 2025 – August 2025

- Built an end-to-end **fraud-detection pipeline** for the Sentinel platform, processing **200 M+ wire & ACH records**, **reducing false positives by 80 %** and **boosting accuracy by 23 %** through **login-anomaly, amount-spike, and sender/recipient-pattern algorithms**.
- Trained a **TensorFlow behavioral model** and served it via **Snowflake/Snowpark**, deploying with **Docker-ized containers on AWS EKS** for **auto-scaling, fault-tolerant inference**.
- Hardened quality by embedding **PyTest unit**, **JUnit integration**, and **Locust performance** suites into a **GitLab CI/CD pipeline** for one-click **build-test-deploy**.
- Provisioned cloud stacks using **Terraform**, with **CloudWatch logs** and **Prometheus alerts** delivering **real-time observability** and proactive remediation.
- Led agile sprints via **Jira/Confluence**, aligning engineers, data scientists, and product owners to ship fraud-detection upgrades **on schedule and under budget**.

Innova AI Tech LLC **Palo Alto, CA**
Software Engineer Intern November 2024 – February 2025

- Collaborated with a cross-functional team to design and develop a **distributed platform** for video sharing, live commenting, and secondary creation, enhancing user interaction and engagement. Built the backend using **Spring Boot** and **MVC architecture**, with a **MyBatis ORM layer** for seamless database operations on **MySQL** with **XML** and **JSON,** communicating through **GraphQL**.
- Integrated **Redis caching** and **Kafka** to efficiently manage high-concurrency requests and asynchronous task queues, ensuring smooth performance during peak traffic and improving system fault-tolerance. Secured data transmission and authentication using **AES-256 encryption** and **SAML**.
- Designed and implemented the front end using **React.js** and **Angular Framework** with **HTML** and **TypeScript**, enabling video playback, live bullet screens (**Danmaku**), and intelligent recommendations. Established real-time communication between the front end and backend through **REST APIs** and **Postman** with **Selenium** and **JMeter** for testing, supporting live commenting and notifications.
- Optimized **system scalability** through **Scala** and promoted cross-team collaboration in **Agile Scrum Environment** by deploying containerized solutions using **Docker** on **GCP** and automating updates via **CI/CD pipelines** on **Jenkins** and **Kubernetes**.
- Enhanced database efficiency through **SQL indexing** and **Mapreduce**, reducing response times by **30%**, and integrated **load balancing** to ensure platform stability. Successfully handled over **100,000 simultaneous users** with a **99.9% uptime** in a distributed system architecture.

Fencer's Page **Chicago, IL**
Founder of Start-up Company March 2023 – Present

- Built YueJian, an end-to-end fencing hub with **Swift/Kotlin** apps, **React + Spring Boot/.NET + FastAPI/Flask** micro-services on **GCP** and self-hosted clusters, hardened by **JWT** auth and **Celery** queues, scaling to **50 000 + users**, **200 + clubs**, **$850 K revenue**, and **75 000 + followers**.
- Optimized the data tier by redesigning **PostgreSQL** indexes and adding **Redis** sharding, load-tested with **JUnit/JMeter**, slashing query latency **65%** and tripling peak MAU with **zero downtime**.
- Delivered ultra-low-latency streaming by integrating **WebRTC** with **AWS MediaLive**, tuning codecs and bandwidth adaptation to keep end-to-end delay **< 1.5 s** and boost live viewership **120%**.
- Engineered an AI referee pipeline combining **TrackAnything, TorchReID, SAM, YOLO, OpenCV, NumPy, Pandas** and a **PyTorch ANN** trained on **15 000 + videos**, raising decision accuracy to **92%** (vs. human 70%) and autonomously scoring **500 + matches/day**.
- Co-developed a micro-controller + camera plug-in for scoring boxes that streams signals over **HTTP** to cloud models; production slated **Sep 2025**, projected to cut scoring latency **< 100 ms** and unlock new **SaaS revenue**.

PROJECTS

AI Agent Development **Feb 2025 – June 2025**

- Partnered with product managers to design an intelligent **AI Agent** for enterprise applications, enhancing user engagement through **NLP**, task automation, and contextual understanding.
- Built a scalable backend using **Golang** and **gRPC** with a front end based on **HTML** and **CSS**, integrating **OpenAI GPT models** and **LangChain** for dynamic knowledge updates and **NoSQL** databases for long-term memory.
- Deployed the AI Agent solution on **AWS EC2 instances**, leveraging cloud computing using **Terraform** to handle over **50,000 concurrent requests**, reducing latency by **35%** and enabling real-time interactions for enterprise users.
- Integrated **text-to-speech (TTS)** capabilities and deployed the agent on Telegram, improving accessibility and increasing user engagement rates by **20%** through personalized and emotionally intelligent interactions.
- Implemented extensible API integrations to support external tools and use **Datadog** to monitor performance, automating over **70%** of repetitive tasks and boosting productivity for enterprise clients.

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PUBLICATIONS

- Guo, R., Chen, B., & Li, Y. (2024). Deep Learning Methods to Analyze the Forces and Torques in Joints Motion. Applied Sciences, 14(15), 6846.
- Guo, R., Li, Y., & Chen, B. (2023). Machine Learning Approach to Analyze the Heavy Quark Diffusion Coefficient in Relativistic Heavy Ion Collisions. Entropy, 25(11), 1563.