Youlong Ma

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Professional Summary

Software engineer with experience building scalable applications, backend services, data systems, and user-focused products. Strong foundation in software development, system design, and cross-functional collaboration across startup and research environments. Combines hands-on engineering execution with analytical depth from prior scientific work and graduate training in computer science.

Technical Skills

- **Languages**: Python, Java, JavaScript, TypeScript, Go, C++, SQL/NoSQL, HTML, CSS, Shell, JSON, YAML
- **AI & ML**: LLM application development, agentic workflows, LangChain, LangGraph, OpenAI APIs, prompt engineering, multimodal AI, document retrieval, embeddings, structured output generation, evaluation loops
- **Frameworks & Libraries**: Spring, Spring Boot, React, React Native, Next.js, TailwindCSS, Flask, Django, FastAPI, pandas, NumPy, PyTorch, OpenAPI, gRPC, Protobuf, JUnit, pytest
- **Cloud & Data**: AWS, S3, Lambda, ECS/Fargate, EventBridge, DynamoDB, SQS, Glue, Athena, Redshift, PostgreSQL, MySQL, SQLite, ETL/ELT pipelines, data modeling, Parquet, RESTful APIs, IAM, Datadog, CloudWatch
- **DevOps & Tools**: Git, Docker, Kubernetes, Terraform, Terragrunt, Maven, CMake, CI/CD, GitHub Actions

Experience

- **Triple** — Pittsburgh, PA
  Software Engineer — *Sep 2025 – Present*
  - Built a serverless S3-to-Redshift ETL pipeline using Python, Lambda, EventBridge, and the Redshift Data API with idempotent upserts, schema evolution handling, and Datadog monitoring.
  - Developed merchant data scraping and normalization pipelines including deduplication, fuzzy matching, and address standardization to improve downstream analytics and matching quality.
  - Owned ingestion services running on Lambda and ECS scheduled tasks, with Terraform/Terragrunt-managed infrastructure, IAM/KMS controls, and CI-based quality checks.
  - Worked on data-intensive backend systems that supported entity matching and analytics workflows, strengthening experience in production-grade data engineering for intelligent applications.
- **EduPolaris AI** — Los Angeles, CA
  Tech Lead & Software Engineer — *Aug 2024 – Sep 2025*
  - Led production feature delivery in a startup environment from concept to deployment, partnering with designers and engineers to ship user-facing AI product capabilities.
  - Spearheaded multimodal LLM integration using LangChain, improving the platform's ability to support complex and human-centric interactions.
  - Designed and deployed scalable backend services in Java with gRPC and Protobuf to enable reliable inter-service communication for AI-enabled products.
  - Translated Figma designs into responsive React frontends with TailwindCSS, increasing user engagement by 13%.
  - Automated Kubernetes-based container orchestration and CI/CD pipelines, cutting deployment time in half and improving release stability.
- **Amazon** — Detroit, MI
  Software Engineer Intern — *May 2024 – Aug 2024*
  - Designed and implemented a Java-based feature flagging system enabling dynamic experimentation, including A/B testing and canary deployment strategies, within Amazon data services.
  - Improved system resilience and configuration flexibility through AWS AppConfig-based decoupled configuration management.
  - Optimized data service APIs, reducing query latency from 10 seconds to 50 milliseconds through targeted performance tuning.

- **U.S. Food and Drug Administration** Silver Spring, MD
  Research Fellow *Nov 2017 – Oct 2022*
  - Directed multidisciplinary work on scientific data analysis pipelines, building reliable Python-based systems for drug analysis, interpretation, and regulatory reporting.
  - Communicated technical findings to both technical and non-technical stakeholders, including FDA leadership, across complex and high-stakes projects.
  - Authored 6 peer-reviewed publications and more than 20 technical reports, demonstrating strong research, technical writing, and analytical problem-solving skills.

Selected AI Projects

- **EduAgent | Python, LangGraph, OpenAI, SQLite** Built an AI-agent-powered education tool for learning system design. Multiple LangGraph-orchestrated agents analyze learner background, generate a personalized syllabus, and deliver adaptive instruction through an interactive CLI. Implemented persistent learner progress tracking with SQLite and a tested modular architecture for discussion, syllabus generation, and instructor workflows.
- **AI Stock Agent | Python, Flask, LangChain, OpenAI, Polygon** Developed a web-based stock analysis application that combines real-time market data, company news, and financial metrics with AI-generated analysis. Integrated Polygon market data and LangChain-based reasoning to produce investor-friendly insights through a responsive Flask interface.
- **Agentic Doc Retrieval for FDA Recalls | Python, LangChain, OpenAI, Embeddings** Built an agentic document search prototype for FDA-regulated product recalls, enabling natural-language retrieval over recall records dating back to 2009. Explored prompt design, embeddings, chains, and agent-based search to improve recall quality over naive document lookup.
- **Portfolio Website | Next.js, TypeScript, TailwindCSS, Framer Motion** Designed and built a personal portfolio site featuring technical case studies and AI projects, showcasing experience in full-stack development, developer tooling, and product presentation.

Education

- **Georgia Institute of Technology** Atlanta, GA
  Master of Science in Computer Science; GPA: 3.80 *Aug 2022 – Dec 2024*
- **Stevens Institute of Technology** Hoboken, NJ
  Ph.D. in Materials Science *Feb 2012 – Oct 2017*

Certifications

- **NVIDIA Certificate of Competency for Agentic AI Development**, NVIDIA – 2025
- **Google AI Essentials**, Google – 2025
- **AWS Certified Cloud Practitioner**, Amazon Web Services – 2025