

Junliang Lyu

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OBJECTIVE

M.S. Computer Science candidate at SMU Lyle School of Engineering with experience in backend systems and applied AI. Seeking software engineering roles focused on engineering reliable, efficient systems and integrating modern AI into practical applications.

EDUCATION

Southern Methodist University (SMU), Lyle School of Engineering Dallas, TX
Master of Science in Computer Science, Expected Dec 2026 | GPA: 3.40 / 4.00
Relevant Coursework: Agentic AI, Machine Learning in Python, Algorithm Engineering, Database Systems, Software Engineering

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, SQL, HTML/CSS
AI & ML: PyTorch, Transformers, scikit-learn, XGBoost, GraphCodeBERT, CodeBERT, RAG, FAISS, Ollama
Backend & Web: Spring Boot, REST APIs, MCP, Next.js, React, Django, Flask, Streamlit, Tailwind CSS, MDX
Data & Databases: PostgreSQL, MySQL, SQLite, pandas, NumPy, Flyway
Cloud & DevOps: AWS Lightsail, Docker, Docker Compose, Caddy, Git, GitHub, GitHub Actions

EXPERIENCE

IT & Network Support, Mingjin Furniture Co., Ltd. 2023 - 2024
Dongguan, Guangdong, China | 500-person manufacturer | approximately 60 computer-equipped office staff

- Automated recurring Excel consolidation across 4+ business functions with Python, reducing affected processing steps from approximately 2-4 hours to minutes and freeing several staff-hours per reporting cycle.
- Coordinated day-to-day IT operations with one other technician for approximately 60 workstations, including OS deployment, network setup, and hardware/software troubleshooting to maintain reliable office operations.

SELECTED PROJECTS

Multi-Channel AI Chatbot Platform Independent | 2026
Python, OneBot, Discord, Docker Compose, SQLite, RAG, Ollama

- Engineered a multi-channel conversational AI platform with layered moderation, persona RAG, persistent memory, and model routing; production-tested it in a 300+ active-member QQ community with 5,689 core-model calls across 22 days of uptime and validated it on Discord.
- Architected a four-stage interaction and safety funnel whose lightweight pre-filters screened roughly 80% of incoming messages before long-context generation, reducing unnecessary model calls and token usage.
- Resolved SQLite write-lock contention with WAL mode and targeted PRAGMA tuning; containerized services with Docker Compose, health checks, and internal network isolation.

AI Code Search Engine SMU Faculty Research | 2025
Python, PyTorch, Transformers, GraphCodeBERT, FAISS, CodeSearchNet

- Developed a semantic code search engine over a 300K-snippet subset of CodeSearchNet using GraphCodeBERT embeddings and FAISS indexing, enabling natural-language retrieval by semantic similarity.
- Evaluated 7 retrieval approaches under one consistent setup and achieved MRR 0.50, a 61% relative improvement over CodeBERT (0.31) and 5.6x the token-overlap baseline (0.09).

Personal Portfolio Website Independent | 2026
Next.js 16, TypeScript, Tailwind CSS, MDX, Java, Spring Boot, PostgreSQL, AWS Lightsail, Docker Compose, Caddy

- Launched a bilingual portfolio with reusable Projects, Lab, and Writing collections, site-wide search, responsive layouts, archives, and SEO-oriented metadata.
- Developed a Java/Spring Boot service registry backed by PostgreSQL and Flyway, with JWT-protected admin routes and scheduled health checks for deployed demos and Lab services.
- Deployed the production stack on AWS Lightsail with Docker Compose and Caddy, serving the static site and proxying /api over HTTPS while keeping Spring Boot and PostgreSQL off public host ports.

House Price Prediction Team | 2026
Python, pandas, NumPy, scikit-learn, XGBoost, Random Forest

- Selected and prepared the 2,930-record Ames Housing dataset, handling major data cleaning and reducing 138 raw features to 107 predictors (22% fewer) through correlation, variance, and mutual-information filtering.
- Evaluated model performance and communicated the team findings in the final presentation; XGBoost achieved $R^2 = 0.93$ and RMSE = \$22,947, reducing prediction error by 32% compared with the Lasso baseline.

ADDITIONAL INFORMATION

Soft Skills: Communication, Teamwork, Problem Solving, Adaptability, Critical Thinking
Awards: Dean's List; University Merit Scholarship
Interests & Activities: Open-source contributions, technical content creation, strength training
Work Authorization: F-1; eligible for STEM OPT