Yi LIANG

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Education

Georgia Institute of Technology — Expected Dec 2025
Master of Science in Computer Science (GPA: 4.00/4.00) — *Atlanta, Georgia*

University of Illinois at Urbana Champaign — May 2023
Master of Science in Finance (STEM) (GPA: 3.90/4.00) — *Champaign, Illinois*
Minor Data Science, Concentration in Quantitative Finance

Hamburg University of Technology — 2017.10-2018.03
Bachelor of Economics (GPA: 3.80/4.00) — *Hamburg, Germany*
Full scholarship Exchange Program by China Scholarship Council

Harbin Institute of Technology — July 2019
Bachelor of Economics (GPA: 3.80/4.00) — *Harbin, China*

Experience

AscendCargo.com — Dec 2024 - Present
Software Engineer Intern (Full-Stack) — *Remote*
Core contributor to logistics contract management platform

- Led end-to-end development of Contract Management System using React.js/TypeScript and Spring Boot, implementing dynamic tab navigation with Redux state management
- Designed 15+ RESTful APIs with JPA Specifications for complex queries across nested entities (Contracts→Lanes→Routes→Rates), including advanced filtering (12+ criteria types) and back-end pagination
- Developed reusable UI component library featuring virtual-scroll tables (10k+ rows), multi-entity search, along with back end pagination controls
- Architected relational database schema with 6+ JPA entities, implementing cascading operations and audit logging
- Optimized full-stack performance through React data fetching hooks memoization (35% API call reduction), JPA cross-entity joins via SearchSpecifications utility, and MapStruct-powered DTO mapping automation (70% code reduction)
- Implemented global error handling with @ControllerAdvice (10+ custom exceptions) and React error boundaries integrated with Sentry logging
- Created interactive data visualization dashboard using D3.js (contract heatmaps, lifecycle timelines) with real-time fuel surcharge calculators
- Standardized API documentation via Swagger/OpenAPI with detailed schemas, accelerating frontend integration by 30%
- Developed type-safe full-stack validation using Zod (frontend) and @Valid with custom annotations

University of Illinois at Urbana Champaign — May 2022 - Present
Head Teaching Assistant — *Champaign, Illinois*

- Led teams of 10–20 Course Assistants per course, conducting weekly performance reviews and mentorship sessions that improved grading efficiency by 25% and reduced onboarding time for new hires by 30%
- Designed and implemented standardized training materials for cross-course consistency, resolving 500+ student queries per semester via Salesforce with a 40% reduction in ticket backlog compared to prior terms
- Coordinated with IT and faculty to optimize online discussion forums, improving response times by 50% and student satisfaction scores by 15% through structured feedback loops

Alibaba Group — Mar 2023 - Aug 2023
C++ Backend Engineer Intern — *Remote*

- Developer and maintenance support of Request for Quotation project, which is one important component of alibaba.com (overseas operation access point) under Alibaba Group
- Contributed to the development of a push system using Content-Based Recommendations implemented from our internal model and resolving issues with cross-functional teams, including front-end, math, data, and QA team
- Reduced bug tickets of RFQ by 60% through analyzing tickets, building a relevant help tool, and increasing pre-launch test coverage from 70% to 80%+

Tencent ⟶ Mar 2021 - Aug 2021

Data analyst Intern ⟶ *Shanghai, China*

- Collected 300+ customers' feedback and analyzed data through survey collection, intimately developing a website analytics report to provide promoting suggestions on advertising success and strategy
- Delivered executive briefing of Tencent AI & IoT solutions to corporate customers
- Hosted technical workshops of Tencent Cloud Services to 30+ front-line engineers

Topsperity Securities (Research Institute) ⟶ Jul 2020 - Jan 2021

Industry Research ⟶ *Shanghai, China*

- Took great part in writing industry research reports of Haier, Angelalign, Anker and Xgimi
- Performed simple market research (Angelalign vs Invisalign) to back up report during its IPO
- Maintained and optimized database using Excel and Python

Projects

Machine Learning Research & Algorithm Optimization ⟶ Spring 2025

Python, Scikit-learn, TensorFlow/Keras, Pandas, MLROSE

- **Supervised Learning Optimization & Domain-Specific Modeling:** Conducted comparative analysis of NN, SVM, and KNN with AdaBoost across Spotify and Customer Personality datasets. Integrated MusicBrainz API for temporal consistency, applied SMOTE, and engineered cyclical date encoding, achieving 0.906 AUC (12–18% recall gain), optimized SVM (C=100, RBF) to 85.7% accuracy despite 14.91% responder imbalance
- **Algorithmic Trade-offs in Optimization:** Assessed GA, SA, and RHC on combinatorial and neural tasks: Combinatorial: GA achieved 100% optimality on 30-item Knapsack (fitness=945.8) via mutation tuning (0.002–0.25) and reduced TSP variance by 89% vs. SA. Neural Networks: Highlighted SA's saddle-point struggles (517.1 cross-entropy loss vs. 0.591 accuracy) and GA's runtime inefficiency

Job Comparison Mobile App ⟶ Fall 2024

Android, Java, Gson, SQLite

- Designed a dynamic scoring algorithm using weighted factors to rank jobs, implemented in Java with object-oriented principles. Integrated Gson and SharedPreferences for persistent storage
- Built responsive UI components using Android SDK, including SeekBar widgets for real-time weight adjustments and ListView with custom adapters for job listings

High-Performance File Transfer System ⟶ Spring 2024

C, Linux, POSIX, TCP/IP, IPv4/IPv6 Sockets, pthreads, Non-blocking I/O

- Designed a client-server system for file transfers, employing a thread pool with a work-stealing queue (steque) to manage concurrent connections. Implemented a GETFILE protocol featuring header parsing, error handling, and chunked file transmission, integrated with a distributed file system via gRPC framework
- Enhanced server performance by integrating select() for I/O multiplexing and non-blocking sockets, optimizing throughput and reducing average response time by 25% under loads exceeding 500 RPS while maintaining robust concurrency handling

Complex Derivatives Pricing ⟶ Fall 2024

Python, NumPy, Pandas, Matplotlib

- Architected a pricing framework integrating Monte Carlo simulations, binomial trees, and finite difference methods to value complex derivatives (Asian options, autocallable notes, barrier options)
- Implemented financial mathematics volatility surface interpolation ($\sigma = 21.7\%$–30.8%), and autocall triggers. Conducted sensitivity analyses($<0.5\%$ error): identified 5.8% value differential per 3% volatility shift, stabilized outputs ($\pm 0.3\%$ variance) and formalized stability constraints ($\Delta t < 1/\sigma^2 j^2$) for PDE solutions

Property Value Prediction Model ⟶ Spring 2022

R, dplyr, glmnet, rpart, rsample, purrr

- Developed a regression model in R to predict residential property values using 50k historical sales records, optimizing feature selection. Achieved MSE of 9.14B, outperforming baseline linear regression by 1.3%.
- Deployed stepwise/lasso regression to reduce multicollinearity, improving interpretability while retaining key predictors. Delivered assessed values for 10k properties, ranked top 3 in class

Technical Skills

Languages: C/C++, Java, Python, R, JavaScript, TypeScript, SQL, HTML, CSS
Technologies: React.js, Spring Boot, Redux, JPA, Android SDK, TensorFlow/Keras, Scikit-learn, Pandas, NumPy, Git, Linux, SQLite, MapStruct, Swagger/OpenAPI, gRPC, pthreads, TCP/IP, Sentry, Zod, POSIX, Gson, Glmnet