Yunmu Shu

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Education

Northeastern University — Boston, MA
Master of Science in Computer Science (GPA: 3.9/4.0) — *Sep. 2022 – Aug. 2025*

Northeastern University — Boston, MA
Master of Science in Financial Mathematics — *Sep. 2021 – Aug. 2022*

Guangdong University of Foreign Studies — Guangzhou, Guangdong
Bachelor of Science in Economics — *Sep. 2017 – Jun. 2021*

Experience

Software Developer Intern — Jan. 2025 – Jun. 2025
First Help Financial — *Needham, MA*
- Engineered backend modules for an auto loan origination and decisioning platform used by dealers and underwriters, enhancing automation and ensuring regulatory compliance throughout the funding evaluation workflow
- Analyzed slow SQL queries in loan transaction module using MySQL EXPLAIN, added composite indexes and optimized pagination with keyset query logic, reducing query latency by **22%** under 10k+ records
- Built a centralized Vehicle Data Retrieval service integrating Elasticsearch and **Redis** caching, boosting query throughput by 15% and handling 500k+ monthly search requests across multiple business modules
- Monitored and visualized database performance metrics via Prometheus and Grafana to reduce overall CPU utilization

Software Developer Intern — Feb. 2024 – Jun. 2024
Dassault Systèmes — *Waltham, MA*
- Contributed to backend development of ENOVIA document workflow platform within the 3DEXPERIENCE ecosystem, supporting regulatory compliance and enterprise collaboration
- Designed and implemented **role-based access control** and audit logging for secure document approval and traceability
- Supported and optimized an **API Gateway** for multi-system document synchronization and metadata retrieval, integrating authentication and routing rules to improve throughput by **28%**
- Introduced centralized **caching layer** and API rate limiting to enhance system scalability and prevent redundant access
- Developed asynchronous job handlers using Java Servlet and MQL to process large-scale document import tasks

Software Developer Intern — Jun. 2024 – Aug. 2024
Rapid Micro Biosystemes — *Lexington, MA*
- Enhanced backend architecture of a laboratory imaging platform for automated petri dish image capture and data storage
- Optimized schema by restructuring entity mappings and introducing partitioning strategy to accelerate data retrieval by 25%
- Refactored legacy PHP codebase into modular service components and integrated automated data migration scripts in Bash, ensuring consistency across **1M+** image records and improving maintainability and release stability

Software Developer Intern — May. 2023 – Aug. 2023
Tatfook Technology Co., Ltd — *Shenzhen, Guangdong*
- Designed and implemented dynamic search capabilities using **Spring Data JPA** Specifications, allowing users to perform complex filtering on large datasets and improving response time
- Contributed to the development of backend security modules using **Spring Security** and JWT, implementing Role-Based Access Control and applying **Spring AOP** for logging standardization
- Developed responsive React dashboard using Material-UI and Redux for reusable components and global state management

Projects

Flash Sale E-commerce Platform — Oct. 2024 – Nov. 2024
- Developed a high-concurrency flash sale system handling 10k+ QPS with **Redis** caching to minimize database pressure
- Eliminated "Overselling" and race conditions by implementing Redis Lua scripting to execute atomic inventory checks and deductions, ensuring strict data consistency during peak flash sale events
- Decoupled order processing via **Kafka** for asynchronous traffic shaping, protecting the database from write spikes

GeeCache — Jun. 2024 – Jul. 2024
- Implemented a distributed caching system in Go, developing both local in-memory cache and HTTP-based cache with **Least Recently Used** strategy, and improved inter-node communication using **protobuf**
- Employed **Mutex** locks to prevent cache breakdown and ensure data consistency under concurrent access
- Integrated consistent hashing to select nodes, ensuring load balancing and efficient cache distribution

Technical Skills

Programming Languages:	**Java, C/C++, Go, TypeScript, JavaScript, SQL, Python**
Frameworks:	**Spring Boot, Spring Cloud, React.js, Next.js, Express.js, Node.js**
Databases & Caching:	**MySQL, Redis, MongoDB, PostgreSQL, DynamoDB, Kafka**
Cloud & Tools:	**AWS, Docker, Kubernetes, Jenkins, Nginx, Git, Terraform**