

Junshang Jia

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Education

M.S. in Computer Science(System), **Carnegie Mellon University**
B.S. in Computer Science, **University of Pittsburgh** GPA: 3.9/4.0

Aug 2023 – Expected May 2025
Aug 2019 – May 2023

Skills

Programming Languages: Java, C/C++/STL, CUDA, Python(PyTorch,Pandas), Go, TypeScript, JavaScript, SQL,HTML/CSS
Frameworks: Spring Boot, NestJS, Fastify, GraphQL, React.js, Node.js, Angular, NoSQL, MongoDB, PostgreSQL, MySQL
Tools: Linux, Git, Bash/Shell, AWS, Azure, GCP, Docker, Kubernetes(K8s), Github Actions, Terraform, Jenkins
Knowledge OOP/OOD, Design patterns (MVC, Factory, pub/sub, etc.), Agile, Microservices, RESTful API, CI/CD

Work Experience

Capital One
Software Engineer Intern, NestJS based Web Service for Identity Management
• Developed a company-wide system using NestJS, Fastify, and TypeScript, and deployed it to AWS Elastic Beanstalk.
• Built authentication using Fastify JWT and OAuth2, and designed authorization guards to enforce role-based access control.
• Created GraphQL APIs using Apollo GraphQL, and defined data models using Prisma ORM with PostgreSQL.
• Architected a frontend with Angular, integrating D3.js and Chart.js to create task progress visualizations.
• Constructed Jenkins CI/CD pipelines with Docker, and orchestrated deployment with Kubernetes and Terraform on AWS.

Ericsson
Software Engineer Intern, Spring based Web Service for Product Lifecycle Management
• Spearheaded the development of the system, employing Microservices architecture and API Gateway pattern.
• Architected backend with Spring Boot, integrated authentication with Spring Security, and used Redis for caching.
• Implemented the notification services using Kafka, and utilized Streams API to process and transform notification messages.
• Innovated frontend interfaces using React, TypeScript, and Antd UI library to create product lifecycle visualizations.
• Built the Azure CI/CD pipeline with Docker and deployed the application image on Azure App Service.

Jun 2024 – Aug 2024
Dallas, TX
Jun 2021 – Sep 2021
Beijing, China

Projects

Deep Learning Framework with Customized GPU and CPU Backend
• Developed a deep learning framework and implemented automatic differentiation and tensor acceleration backend.
• Engineered and refined computing libraries for both CPU and Nvidia GPU backends using C++ and CUDA.
• Programmed classic deep learning models, including MLP-ResNet, ResNet9, and RNN/LSTM, using pybind11 and OpenMP.
• Accelerated training time by 50% by integrating OneDNN and CuDNN, providing optimized convolution operations.

ELT and Machine Learning Training using Apache Spark
• Initiated a distributed program using Apache Spark and PySpark to preprocess a large web crawl dataset.
• Monitored memory usage, task execution time, and data shuffling through the Spark web interface.
• Created a scalable distributed machine learning program using Spark RDD, reducing training time by 60%.
• Deployed a Spark cluster on AWS EC2 and automated its provisioning using Flintrock to achieve an efficient setup.

Golang Based Serverless API
• Architected RESTful API endpoints with Go and AWS Lambda, providing backend services for forum data management.
• Integrated AWS services DynamoDB, S3, and API Gateway to create serverless CRUD APIs for forum data using Go.
• Monitored API performance using AWS CloudWatch and X-Ray, enabling quick identification and resolution of issues.
• Constructed Google authentication using Go OAuth 2.0 and integrated AWS Cognito for user management.

Golang LSP Based Bitcoin Miner
• Engineered a scalable system using a custom Live Sequence Protocol (LSP) to perform bitcoin mining with Go.
• Introduced a time-triggered epoch system, bolstering robustness through transmission of heartbeat messages via channel.
• Optimized a load balancing system to ensure efficiency and equitable task allocation based on request size and arrival time.
• Applied the acknowledgment protocol using gRPC for streamlined communication.

Jan 2024 – Jun 2024
Jan 2024 – Apr 2024
Sep 2023 – Dec 2023
May 2024 – Jul 2024