JUNSHANG JIA

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EDUCATION

Carnegie Mellon University Aug 2023 - Expected May 2025
Master of Science, Computer Science(System)
Relevant Coursework: 15213 Computer Systems(C), 10601 Machine Learning(Python), 15440 Distributed Systems(Go)
15618 Parallel Programming(CUDA), 15719 Advanced Cloud Computing, 15645 Database Systems(C++)

University of Pittsburgh Aug 2019 - May 2023
Bachelor of Science in Computer Science

SKILLS

Programming Languages: Java, C/C++, Python(PyTorch,Pandas/Numpy), JavaScript, TypeScript, SQL,HTML/CSS, Go
Frameworks: React.js, Node.js, Angular, NoSQL, MySQL, MongoDB, PostgreSQL, Spring Boot, Flask
Tools: Linux, Git, Bash/Shell, AWS, Azure, Google Cloud, VS Code, Docker, Github Actions, CI/CD, Terraform

WORK EXPERIENCE

Software Developer May 2022 - Sep 2022
Kitzes Lab *Pittsburgh, PA*

- Led the development of a **Python**-based machine learning pipeline using **Convolutional Neural Networks (CNNs)** with **PyTorch**, **Pandas**, **Numpy**, and **Jupyter** achieving a breakthrough 20% improvement in wildlife species identification accuracy.
- Architected a web based frontend with **React.js**, **Apollo**, **Redux**, and **Bootstrap**, along with a **Flask**-based **GraphQL** API, enhancing user interactivity and data visualization capabilities.
- Implemented **Docker** containerization and orchestrated deployment with **Kubernetes** on **AWS Elastic Beanstalk**, leading to a 30% increase in deployment efficiency and scalability.
- Automated code integration and deployment pipelines using **GitHub Actions** and **AWS CodePipeline** for **CI/CD**, achieving a significant reduction in deployment time and enhanced code quality.
- Pioneered significant contributions to OpenSoundscape, an **open-source machine learning library**, empowering users to precisely manipulate Spectrogram power and generate **Python**-based annotation files.

Software Developer Intern Jun 2021 - Sep 2021
Ericsson *Beijing, China*

- Spearheaded the development of a comprehensive **Java** web management system, employing **Microservices** architecture and **API Gateway** pattern, optimizing the product development lifecycle and catapulting overall product quality by **25%**.
- Crafted an Entity-Relationship (ER) diagram aligned with comprehensive product documentation, resulting in the development of a **MySQL** database featuring streamlined indexing and an optimized schema design.
- Architected robust **backend** solutions with **Spring Boot**, **Redis** for caching and session management, and **Apache Kafka** for streaming realtime data, contributing significantly to a **40%** enhancement in software infrastructure scalability.
- Innovated frontend interfaces using **React** and **Antd**, resulting in a **40%** increase in user engagement and enriched interactions for search and information checking behaviors.
- Deployed the application on **Azure App Service** with integrated **Azure DevOps** for CI/CD, and pioneered the use of **Azure Cognitive Services** for advanced data analytics, further streamlining workflows and reducing average deployment time by 46%.

PROJECTS

Raft Protocol

- Spearheaded the implementation of the leader election mechanism, adhering to the Raft protocol in **Go**, resulting in an advanced automated leader selection process, enhancing data replication efficiency by 15%. Integrated **etcd** for distributed key-value storage.
- Engineered a sophisticated log replication mechanism, ensuring high consistency and reliability across cluster nodes. Achieved 99.5% data consistency by implementing a majority acknowledgment protocol using **gRPC** for streamlined communication.
- Implemented RPC procedures for leader election, log replication, and heartbeat checks, utilizing **gob** for efficient encoding

Bitcoin Miner

- Conceptualized and developed a distributed system using a custom Live Sequence Protocol (LSP) to efficiently perform a compute-intensive task – Bitcoin mining by **Go**.
- Introduced a time-triggered epoch system, bolstering robustness through periodic transmission of heartbeat messages.
- Optimized a **load balancing** system to ensure both efficiency and equitable task allocation, taking into account parameters such as request size and order of arrival.

Metis

- Developed Metis, a full-stack web application designed to help people better judge whether information is misinformation. Implemented user authentication using **JWT** and **OAuth2.0**, ensuring secure and convenient user access.
- Constructed an interactive frontend using **React.js**, integrated with **D3.js** and **Chart.js** for creating visualizations.
- Created a robust backend with **Flask**, managing data with a **MongoDB** database. Deployed the application on **AWS Lambda** and **S3**, ensuring scalability and reliability.