JUNSHANG JIA

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EDUCATION

Carnegie Mellon University Aug 2023 - Expected Dec 2024
Master of Science in Information Networking, GPA: 4.0/4.0
Relevant Coursework: 15213 Computer Systems(C), 10601 Machine Learning(Python), 15440 Distributed Systems(Go)

University of Pittsburgh Aug 2019 - May 2023
Bachelor of Science in Computer Science, GPA: 3.9/4.0
Relevant Coursework: Operating Systems(C), Artificial Intelligence(Python), Functional Programming(Haskell)

SKILLS

Programming Languages: Java,C/C++,Python(PyTorch,Pandas/Numpy), JavaScript,TypeScript,SQL,HTML/CSS, Go
Web Technologies: 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

WORK EXPERIENCE

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

- Executed research on utilizing **CNN** models for the identification of wildlife species in the field.
- Facilitated seamless collaboration within cross-functional teams, elevating code quality through pull requests and in-depth discussions, resulting in superior project outcomes.
- 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*

- Engineered a high-impact **Java**-based web management system, optimizing the product development lifecycle and catapulting overall product quality by **25%**.
- Crafted an Entity-Relationship (ER) diagram meticulously 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**, leading to the establishment of **RESTful APIs** and contributing significantly to a **40%** enhancement in software infrastructure scalability.
- Innovated dynamic frontend interfaces using **React** and Antd, resulting in a **40%** increase in user engagement and enriched interactions for search and information checking behaviors.

PROJECTS

Raft Protocol

- Spearheaded the implementation of the leader election mechanism, adhering to the Raft protocol in **Go**. This resulted in a seamlessly automated leader selection process, optimizing data replication.
- Designed and executed a robust log replication process, ensuring consistent data across all cluster nodes. Log entries were committed upon acknowledgment by a majority of nodes, contributing to heightened system reliability.
- Architected clear and structured **RPC** procedures for leader election, log replication, and heartbeat communication.

Memory Allocator

- Designed and implemented a memory allocator from scratch for efficient memory management using **C**.
- Applied various strategies(segregated free list, explicit lists, and memory alignment) to mitigate fragmentation.
- Created a robust and efficient memory allocation algorithm outperformed existing solutions by improving throughput memory utilization by an impressive **70%**.

Bitcoin Miner

- Designed 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.