

# PIYUSH JAGADISH BAG

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Currently on **H1B**, Looking for **Software Engineer L4** opportunity from **July 2024** with **PERM** sponsorship

## EXPERIENCE

### Arista Networks

Santa Clara, CA

Software Engineer, Developer Experience and Productivity

Mar 2022 - June 2022, Sep 2022 - Dec 2022 (Intern), Jan 2023 - Present

- Architected and implemented a robust event-driven architecture to handle over 100,000 events per second, ensuring low-latency requirements through effective use of Kafka for message streaming and gRPC with Protocol Buffers for efficient serialization.
- Automated the provisioning and management of cloud infrastructure using Terraform, enabling reproducible and scalable environments. Deployed a multi-cluster Kubernetes setup, achieving 99.99% uptime, and ensuring robust infrastructure management.
- Integrated comprehensive monitoring and observability solutions using Prometheus and OpenTelemetry, facilitating real-time metrics collection, distributed tracing, and logging, reducing incident response time by 40%.

### Apple

Sunnyvale, CA

Software Engineer Intern, Summer 2022

Jun 2022 - Sept 2022

- Replaced built-in Query Parser ANTLR with custom Query-Support developed using Go and MongoDB Aggregation Pipeline and MongoDB Query Language, enhanced performance of Search API in Data Access Layer by 30%
- The allowed front end team to search DB using custom-built structs and unifying within an interface in order to leverage MongoDB query operators in JSON format. Wrote unit tests for 30+ use cases, bringing test coverage to 100%.
- Improved the performance of a legacy backend system by refactoring and optimizing code in Go, resulting in a 60% reduction in response time and a 40% increase in system stability

## TECHNICAL SKILLS

Languages:

Go (Proficient), Python, TypeScript, JavaScript

Frameworks:

Gin (Proficient), Django, Flask, React, Node.js, GraphQL

Databases:

SQL - [Postgres, MySQL] (Proficient), NoSQL - [MongoDB, Cassandra]

Developer Tools and Other Technologies:

Git (Proficient), Docker, Kubernetes, Github Actions, Terraform, AWS, GCP

## PROJECTS

### Redis Internals in Go

Jan 2024 - Jun 2024

Go, Event Loops, Serialization Protocols, TCP/IP Networking, IO Multiplexing, Persistent Mechanism, Eviction Strategies

- Reimplemented Redis core features in Golang, including event loops, serialization protocols, and command pipelining, enabling seamless integration with any Redis client worldwide
- Developed advanced eviction strategies such as approximated LRU eviction, ensuring efficient memory management and high performance under heavy load
- Implemented Redis persistence mechanisms, including Append-Only File (AOF) persistence, to guarantee data durability and recovery in distributed systems

### Distributed SQL Database in Go

Jan 2024 - Jun 2024

Go, B-tree data structure, Consistency models, Logging, Metrics, Tracing, Observer Pattern

- Engineered a copy-on-write B-tree data structure to enhance database crash recovery capabilities, ensuring data durability and consistency across multiple versions
- Managed service deployments on virtualized and containerized platforms, including EC2 and Kubernetes, to support scalable and fault-tolerant distributed systems

## EDUCATION

### Santa Clara University

Santa Clara, CA

Master of Science in Computer Science, 3.78 / 4.00

Mar 2021 - Dec 2022

### University of Mumbai

Mumbai, India

Bachelor of Engineering in Information Technology, 7.05 / 10.00