

# Mohan Kumar R

mohankumarr2407@gmail.com — +91-7010969868  
linkedin.com/in/mohan-kumar-r — github.com/MOHANKUMAR-IT

Software Engineer with 2.5 years of experience in building scalable distributed systems at Zoho. Specialized in P2P networking, high-performance backend services (Go/C++), and fault-tolerant file distribution systems. Strong focus on concurrency, scalability, and network programming.

## Skills

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**Languages:** Go, C++, Python, JavaScript

**Distributed Systems:** P2P Networking, Consensus (Bully Algorithm), Distributed Storage, Load Balancing

**Infrastructure & Tools:** Docker, Kubernetes, MongoDB, SQLite, libp2p, IPFS, Prometheus, Grafana

**Core Strengths:** Fault Tolerance, Scalability, Network Programming, Concurrency

## Experience

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### Member of Technical Staff

*June 2023 – Present*

Zoho, Chennai

- Architected and implemented a **high-performance P2P file distribution system** using libp2p, supporting concurrent file sharing across thousands of nodes with automatic peer discovery and content-addressed storage.
- Developed NeuroGrid a p2p overlay network for aggregating data posts from thousands of clients and posting them to app server for processing.
- Built **file caching and distribution network** using P2P architecture to efficiently distribute patches and software files, reducing server load by 1:N systems within a network.
- Designed **monitoring infrastructure** with Prometheus and Grafana, providing real-time visibility into system health, network performance, and resource utilization in all P2P nodes.
- Developed **high-performance backend services** in Go and C++, implementing efficient concurrency patterns and optimizing for low-latency operations at scale.

### Internship Trainee

*Jan 2023 – Jun 2023*

Zoho, Chennai

- Gained Win32 API knowledge and implemented various features using C++ for system-level integration.
- Worked with Citrix and VMware vSphere to manage lifecycle of virtual machines in distributed environments.

## Projects

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### gocxx - Go-inspired Concurrency Library for C++

- Developed a comprehensive **concurrency library for C++** inspired by Go's concurrency model, featuring channels, select operations, defer mechanism, and synchronization primitives.

### Open Source Contributions - Golang & libp2p

- Contributed to **Go programming language ecosystem** and libp2p networking stack, enhancing distributed systems capabilities.

### Distributed Consensus System (Bully Algorithm)

- Implemented a **consensus mechanism** in Go using the Bully algorithm for leader election and coordination across multiple distributed nodes.
- Built comprehensive **inter-node communication** with error handling, timeout mechanisms, and message ordering for reliable distributed coordination.

## Education

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### Bachelor's Degree, Information Technology

*Jul 2019 – May 2023*

Thiagarajar College of Engineering (TCE), Madurai

Graduated with a CGPA of 9.13/10

*Activities: Hockey*