# Arumalla Mohit Krishna

+1(631)352-8643 | marumalla@cs.stonybrook.edu | linkedin/mohit-krishna-arumalla

## Education

**Stony Brook University, New York, USA – MS in Computer Science** Aug 2025 – May 2027

*Coursework: Database Systems, Analysis of Algorithms, Transformer Architectures & LLMs*

**Birla Institute of Technology and Science, Pilani – B.E. Electronics & Communication – GPA: 8.02/10** Aug 2019 – July 2023

*Coursework: Object Oriented Programming, Operating Systems, Data Structures & Algorithms, Computer Networks*

## Technical Skills

**Languages**: Golang (Production), C++ (Distributed Systems), Java, Python, JavaScript, SQL (PostgreSQL)
**Backend & Cloud**: RESTful APIs, gRPC, Microservices, AWS (EC2, S3, Lambda, Titan), Docker, Kubernetes, Linux
**Distributed Systems**: Apache Flink, Kafka, CDC, Raft Consensus, RDMA, Paxos, RPC
**Data & AI**: PostgreSQL, Elasticsearch, Redis, RocksDB, Vector DBs, RAG, ML Pipelines, Real-time Aggregation
**DevOps**: CI/CD, NGINX, New Relic, Airflow, Performance Profiling, Swagger/OpenAPI, Automated Testing
**Networking**: TCP/IP, DNS, DHCP, RDMA, Network Performance Optimization

## Experience

**Infra.Market, Bangalore, India** - Software Engineer II Apr 2024 – Aug 2025

- Architected **production AI-driven RAG system** serving **100K+ monthly queries** with Elasticsearch vector DB and AWS Titan Embeddings; achieved **28% CTR increase, 45% zero-results reduction**, improving satisfaction from **3.2 to 4.1/5.0**
- Designed **real-time distributed data pipeline** using Apache Flink, Kafka, and CDC, syncing **5M+ records** from PostgreSQL to Elasticsearch; reduced latency from **10-15 min to 500ms** via RocksDB state management and FlinkSQL
- Optimized **backend service handling 50K+ daily queries**, reducing memory by **70%** through Elasticsearch client optimization and Golang heap profiling; eliminated GC pauses and OOM errors in production
- Built **Deal Mining Workbench backend** with **100+ field dynamic indexing** and faceted search; enabled **35% faster discovery for 200+ users**, increasing conversion rates
- Developed **scalable microservices** with custom hierarchical location structure, full CRUD operations, Looker integration, and RESTful APIs for distributed location-based queries

**Infra.Market, Chennai, India** - Software Engineer I Jul 2023 – Mar 2024

- Owned **Search and Location microservices** design and maintenance, delivering backend APIs for product discovery and geolocation across distributed cloud infrastructure
- Built **Airflow data pipelines** migrating denormalized datasets from BigQuery to Elasticsearch with query optimization and dynamic filtering for enhanced search performance
- Implemented **automated monitoring with Slack alerts** for stale index detection across Elasticsearch, BigQuery, and Airflow, enabling proactive infrastructure maintenance
- Resolved critical **PostgreSQL connection leaks** in location service using Gorm ORM; validated fixes through concurrent load testing to prevent deadlocks under high traffic
- Standardized **API documentation via Swagger/OpenAPI** across Golang microservices and deployed **distributed tracing with New Relic** for end-to-end monitoring

## Projects

**RDMA-Accelerated Distributed Transactions** | *C++, RDMA, Distributed Systems* | Academic Research Nov 2025 – Ongoing

- Architecting **RDMA integration for distributed transaction replication** targeting **30-50% latency reduction and 40-60% CPU improvement** over TCP/IP by implementing one-sided RDMA operations for Paxos-based log shipping
- Designing **remote memory layout and RDMA connection management** with both two-sided verbs and one-sided operations for commit notifications, researching Motor (OSDI '24), FaRM, and DrTM for low-latency protocols

**Raft Consensus Protocol** | *C++, RPC, Distributed Systems* | GitHub Sept 2025 – Nov 2025

- Implemented **Raft consensus algorithm in C++** achieving distributed consensus across **5-node clusters** with leader election, log replication, and fault tolerance maintaining **99.9% availability** under network partitions and split-brain scenarios
- Built **custom RPC protocol** with RequestVote and AppendEntries handlers, managing timeouts and ensuring sub-5-second leader election with consistent state replication

**Elasticsearch Configuration Service** | *Golang, Elasticsearch* | GitHub Apr 2025 – Jul 2025

- Engineered **platform abstraction layer** with self-serve RESTful APIs for Elasticsearch operations, enabling teams to provision search infrastructure without specialized expertise
- Designed **Golang backend services** for automated index lifecycle management, schema versioning, and query optimization, **reducing setup time by 70%** with infrastructure-as-code and rollback capabilities