

# Muhammed Sabir P

Backend Engineer

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## Summary

Backend engineer with 2.5+ years building real-time communication platforms in production. As a founding engineering team member, I own a high-throughput routing engine and orchestrate microservices across 10M+ contacts, logging a baseline of 100K+ daily call entries via distributed Cassandra clusters. Looking for a backend or applied AI role building resilient, production-scale systems.

## Experience

### Software Engineer · Bistux Solutions Pvt. Ltd.

07/2024 – Present

Founding Engineer - Backend & Distributed Systems

- Architected **multi-instance real-time** telephony platform (SIP.js, FreeSWITCH) **across 9 microservices**, with **concurrency-safe round-robin** and **sticky-agent routing** via Cassandra LWTs to fulfill hard enterprise requirements that **unblocked initial production deployments**.
- Built a shard-based distributed job scheduler across 3 service instances (10 shards per instance) processing **10K+** daily tasks. Enforced **epoch fencing** for **zero split-brain** incidents, and tuned `gc_grace_seconds` to **resolve tombstone bloat**, dropping Cassandra read timeouts to zero under heavy workloads.
  - Technical Write-up: [Re-architecting this scheduler pattern into an open-source Postgres & RabbitMQ stack](#)
- Owned the live migration of **20+ Cassandra tables**, several **exceeding 15M rows**, from DataStax managed cloud to self-hosted Cassandra using DSBulk and custom Node.js automation, executed midnight to 4:30am with **dual-write cutover**. A mid-run v4 to v5 incompatibility broke execution; **fault-tolerant script design** skipped failing tables instead of crashing, enabling targeted recovery without restarting.
- Took unsolicited ownership of a **long-deferred data reliability** issue eroding stakeholder trust in exported call reports. Redesigned call logging from **insert-delete to append-only** and replaced increment-decrement counters with **increment-only logic**, achieving **100% call state accuracy**, cutting final status latency by **80% (5s to 1s)**, and eliminating complex backend count reconciliation without a single breaking schema change.
- Built a real-time **notification engine** via RabbitMQ and WebSockets processing **500K+ events daily**. Sustained throughputs of 500 messages/sec with **sub-50ms** latency for live call state and multi-channel webhook delivery.
- Orchestrated a Docker Swarm environment for **19 microservices**. Built **tag-driven CI pipelines** for automated image builds, streamlining the deployment workflow to support 8+ weekly production releases with minimal manual overhead.

### Frontend Engineer · Bistux Solutions Pvt. Ltd.

01/2024 – 06/2024

Founding team – Grew into full-stack ownership, building backend APIs and Cassandra schemas alongside frontend work.

- Developed a production soft-phone UI with fluid animated interactions via Framer Motion, integrated call controls, and contact timelines. Implemented **DOM virtualization** to render **100K+ daily** call log entries per enterprise account without browser performance degradation.
- Rebuilt **node-edge graph** Call Flow editor, resolving frontend concurrency issues and **useEffect anti-patterns**. Integrated AWS media services & Google Text-to-Speech for voice synthesis with waveform visualization, improving rendering performance by **62%**.
- Engineered full-stack search across **1M+ contacts**. Built REST APIs leveraging Cassandra **Storage Attached Indexes (SAI)**, delivering **<50ms query resolution** for complex multi-parameter filters.

## Projects

### Angle - AI Animation Studio

[github.com/anonlegionoke/angle](https://github.com/anonlegionoke/angle), [angle-alpha.vercel.app](https://angle-alpha.vercel.app) | Next.js, Python, Tailwind CSS, FFmpeg, PostgreSQL, Manim, Github Actions

A full-stack AI app generating 3Blue1Brown-style math animations from natural language prompts. Features a browser-based video editor, multi-track audio, FFmpeg MP4 exports, and GitHub Actions rendering pipelines with real-time delivery via webhook callbacks.

### AskVerse

[github.com/anonlegionoke/Chat-with-AI-RAG](https://github.com/anonlegionoke/Chat-with-AI-RAG), [chat-with-ai-rag.vercel.app](https://chat-with-ai-rag.vercel.app) | Next.js, React, TypeScript, Tailwind CSS, LangChain, RAG

An AI chat application with 3 modes - quick chat (stateless), memory chat (context-aware), and document Q&A (PDF/JSON upload) using RAG with LangChain for document chunking, embedding, and similarity search.

## Skills

**Production:** TypeScript, JavaScript, Node.js, Express, React, Redux, SIP.js, Material UI, Framer Motion, Cassandra, WebSockets, RabbitMQ, Microservices, Event-Driven Architecture, Linux, Docker, Nginx, AWS, CI/CD

**Comfortable with:** Next.js, Python, PostgreSQL, Github Actions, Tailwind CSS

**Learning:** Rust, LLM applications, RAG, LangChain

## Education

**Bachelor of Engineering, Electrical & Electronics Engineering** — APJ AK Technological University, 2023