Ratul Bhowmick

Senior Backend & Systems Engineer | AI Voice Platforms | Distributed Systems



ratulbhowmick66@gmail.com 01791279018

in/ratul-bhowmick/ github.com/Ratul1997 ratulbhowmick.com

Profile

Senior backend and systems engineer leading an eight-engineer team behind a production AI sales platform. Build and operate real-time voice and messaging systems using Gemini, OpenAI, Twilio, Cloudflare Workers, Durable Objects, Queues, and PostgreSQL. Own the complete workflow from lead intake and campaign decisions through live conversations, post-call analysis, and CRM synchronization across 40+ customer organizations and more than 1 million AI-powered calls.

Skills

Backend, AI & Real-Time
TypeScript, JavaScript, Node.js, NestJS, Express.js, REST APIs, WebSockets, Event-Driven Systems, Gemini, OpenAI, Twilio Voice/SMS, Streaming Audio, LLM Integration

Cloud & DevOps
Cloudflare Workers, Durable Objects, Queues, Wrangler, Google Cloud Platform, AWS EC2, AWS S3, Docker, GitHub Actions, CI/CD, Git, Jira

Databases & Integrations
PostgreSQL, MySQL, MongoDB, Firebase, CRM Integrations, Third-Party API Integrations (Zapier, FUB, Lofty etc)

Frontend & Mobile
React, Next.js, React Native, Redux, Zustand

Professional Experience

Senior Backend & System Engineer, *Forward Flow* 2024/05 – present | Remote

- Lead an eight-engineer team behind Forward Flow's core platform, owning technical direction, architecture decisions, work planning, code reviews, developer mentoring, and production releases.
- Architected the end-to-end AI sales automation engine supporting **40+ customer organizations and more than 4 million leads**, covering lead intake, campaign assignment, live conversations, outcome processing, and CRM synchronization.
- Own reliability for a multi-tenant PostgreSQL platform with **40+ organization schemas and more than 20 million records**; redesigned indexes and queries to reduce timeout-prone operations to sub-second response times.
- Built real-time AI voice and SMS agents using **Gemini, OpenAI, Twilio, WebSockets, and streaming audio**, including conversation state, tool execution, and automated post-call analysis.
- Designed event-driven services using **TypeScript, Cloudflare Workers, Durable Objects, and Queues** to coordinate campaign workflows and process lead activity reliably at scale.
- Developed REST APIs, webhooks, and integrations with **Zapier, Follow Up Boss, Lofty, and other CRM platforms**, automatically returning conversation results without manual handoffs.
- Own production reliability across PostgreSQL data, workflow state, external APIs, call events, and asynchronous jobs—from root-cause investigation and query optimization through deployment of the fix.

Senior Full Stack Developer, *Programming Hero* 2022/06 – 2024/07

- Built and maintained full-stack features for property-maintenance and legal-domain products.
- Translated business requirements into practical product workflows and production-ready features.
- Worked with product, design, and engineering teams to plan, implement, review, and release new functionality.
- Mentored junior developers and contributed to code reviews, technical decisions, and delivery planning.

Full Stack React Native Developer, *Powah Ltd* 2021/10 – 2022/06

- Developed and debugged mobile applications, including API integrations, data-driven interfaces, and state management using React Redux and Redux Thunk.
- Integrated Google Cloud services, payment providers, Firebase Firestore, Firebase Cloud Messaging, and serverless Node.js functions.
- Contributed to mobile applications released through the Apple App Store and Google Play Store.

React Native Developer (Contractual), *Agamisoft* 2021/10 – 2022/04

- Built the first version of a React Native music application by converting Figma designs into production-ready mobile screens.
- Integrated REST APIs, Google Maps, location services, social authentication, and prayer-time services.
- Collaborated with backend developers, QA engineers, and product leadership to troubleshoot issues and prepare releases.

Instructor, *Diligite* 2020/10 – 2021/11

- Led developers working on React and MERN-stack applications.
- Reviewed implementation work, helped resolve technical problems, and supported project delivery.
- Trained junior developers in React, JavaScript, REST APIs, Node.js, and practical development workflows.

Junior Software Engineer, *Corepiler* 2020/05 – 2021/05

- Built social-platform features including profile management, media uploads, friend lists, and friend-request workflows.
- Collaborated with frontend and backend developers to troubleshoot browser issues and release assigned features.

Software Engineer Trainee, *Diligite* 2018/05 – 2020/01

- Built foundational experience with React Native, React, REST APIs, Node.js, and AWS services.
- Assisted with implementation, testing, debugging, and general development tasks.

Education

Bachelor of Science in Computer Science & Engineering 2017 – 2022
Chittagong University of Engineering & Technology

Publications

An Approach for Improving Complexity of Longest Common Subsequence Problems using Queue and Divide-and-Conquer Method In this paper the space complexity of LCS is reduced by replacing 2D array by queue and time complexity is reduced by divide and conquer method. I ↗,
IEEE Xplore