Mallar Bhattacharya

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TECHNICAL SKILLS -

Frontend Development:
- JavaScript, TypeScript, React.js
- Next.js 15, Redux, Recoil, Zustand
- Modern frontend architecture and state management

Backend Development & DevOps
- Node.js, Express.js
- Docker, Podman containerization
- MongoDB, PostgreSQL database systems

PROFESSIONAL EXPERIENCE -

Test Engineer | YellCast Inc. | November 2023 - March 2025
- Developed comprehensive test suites for backend APIs using **Bash** scripting and **Postman**
- Identified and resolved critical bugs in **custom Android SDK** implementations
- Collaborated with development teams to improve software quality and reliability

PROJECTS -

[Link] **Chess-Room** | Full-Stack Real-Time Multi User Platform

Technologies: Socket.io, Agora SFU, React.js, Next.js 15, NextAuth, PostgreSQL, Zustand

- Architected and implemented a responsive frontend using **Next.js 15** with modern state management
- Engineered real-time multiplayer functionality using **WebSocket** technology and **TypeScript**, achieving **<50ms** latency for move synchronization
- Integrated **video conferencing** capabilities using **Agora's** Selective Forwarding Unit (SFU) with **99.9%** uptime
- Designed and implemented secure user authentication using **NextAuth with JWT**
- Deployed and managed **PostgreSQL** database infrastructure on **Aiven**

[Link] **PacketSend** | Real-Time Peer-to-Peer File Sharing App

Technologies: WebRTC, Ably, Websockets, React.js, Next.js 15, TypeScript, Tailwind CSS

- Developed a full-stack file-sharing application enabling 1:1 **real-time peer-to-peer** transfers with zero server-side storage
- Engineered **WebRTC** connection pipeline for direct file exchange, achieving transfer speeds of up to **8MB/s** with support for files >2GB
- Implemented custom flow control and chunked streaming logic, reducing memory usage by **~95%** during large file transfers
- Built a real-time signaling layer using **Ably Pub/Sub**, enabling connection setup within **<300ms** under average network conditions
- Integrated complete **transfer lifecycle handling**: progress tracking, cancel/resume logic, and automatic peer disconnect cleanup

EDUCATION and COURSES -

Bachelor of Science in Mathematics (Honours) Calcutta University | 2020 - 2023
[Link]
Professional Development - 100xdevs Cohort 3.0 [Link]