Pratyush Birole

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EDUCATION

Vellore Institute of Technology	Bhopal, India
Bachelor of Technology in Computer Science Engineering, CGPA: 8.1	***Nov 2022 – Dec 2026***
The New Tulip International School	Ahmedabad, India
Higher Secondary, Computer Science, Grade: 88%	***Jan 2021 – Mar 2022***

EXPERIENCE

Software Development Intern — **Sep 2024 – Dec 2024**
Preprod Corp — *Bangalore, India*
- Constructed and implemented business logic, architected a **scalable web application**, optimizing platform by **35%**.
- Introduced real-time **Geo-spatial mapping** of users using Leaflet.js, reducing average travel distance and time by **20%**.
- Devised **data ingestion APIs** for **AI/ML** models and engineered a recommendation system to suggest nearby cabs based on user **proximity** and availability increasing algorithmic competence by **40%**.

Software Development Engineer — **Jan 2024 – Jun 2024**
MSDCA — *Ahmedabad, India*
- Developed a Full-stack registration portal that scaled to **1.5K+ users**, processed **1.2K** transactions, and generated **25L** in revenue. Enhanced system scalability by **90%**, configuring servers on **AWS EC2** and scaling client-side on Hostinger.
- Architected **client data flow** and ensured **parameterized data-validation** for forms, enforced atomic server-side order processing, enhancing data integrity by **70%**. Built low latency backend APIs, integrated **Razorpay** and handled errors.
- Benchmarked **Automated Ticket Generation**, reducing manual setup by **90%**, via idempotency keys and Payment ID.

PROJECTS

Secondmemory.ai | *Python, LangChain, Crew AI, ChromaDB, FAISS DB, React.js, Firebase* — [Github](#) | [Demo](#)
- Designed a production-ready **Multi-Agent RAG** solution using **LangChain**, enabling efficient querying of custom **user knowledge bases**. Deeply integrated **context-aware AI assistance**. Improved chunking & query efficiency by **30%**.
- Modeled **AI agents** using **Crew.ai** to automate **code generation**, analysis and debugging of large user code base.
- Optimized **vector embeddings** by **40%** using **Cosine Similarity Search** and **Content-based Segmentation**.

ByteStream | *MERN, Redux, WebSockets, WebRTC, Redis, Turborepo, AWS EC2, PM2* — [Github](#) | [Demo](#)
- Built **Byte Stream**, a **unified workspace for product management**, with **10+** features increasing team productivity by **70%**. Incorporated user authentication using **Nodemailer** (SMTP) and **JWT** tokens improving security by **85%**.
- Pioneered a **low-latency** chat system using **Redis caching**, on Aiven Cloud, within a **monorepo architecture**.
- Encapsulated in-app **Video Call** feature using **WebRTC** and **Socket.io** for High-quality **Audio/Video Transmission**.
- Deployed Node.js server on **AWS EC2** with **PM2** for improved **load balancing** and continuous operation of **REST APIs**, optimizing data retrieval and storage for a notable **20%** enhancement in system efficiency and stream operations.

Intelsy IDE | *React.js, Python, Express.js, AWS Lambda, ECR, API Gateway, Docker, WebSockets* — [Github](#) | [Demo](#)
- Developed a real-time **Collaborative IDE** for **pair programming and collaborative coding** supporting **50+** concurrent users using **Websockets**, with native **terminal**, **auto-sync Whiteboard** and **AI Assistance** for coding.
- **Dockerised** and engineered **Remote Code Execution engine** using **AWS Lambda, ECR** and **Subprocesses** to execute `.py`, `.java`, and `.cpp` codes, saving upto **500+ MB** of local memory. Formulated **AWS APIs** for compilation.

ACHIEVEMENTS

Top **9%** on Leetcode and **Max Rating** of **1750**. Solved **1000+** DSA problems on [Leetcode](#) and [CodeChef](#) and [Codeforces](#).

Achieved global Ranks of **1396/31701** in Leetcode's Weekly 440, **2700/22325** in Weekly 427, **3811/33261** in Biweekly 149.

Secured global rank of **185/16098 in START166** & **851 in START170**. CodeChef (**Max Rating: 1585**).

2nd Position in [John Hopkins](#) USA, Hackathon. **1st** position in **Bug-Off'24** and **3rd** Runner-Up in **VIT Unplugged'24.**

Orchestrated an [AutoML solution](#), securing **3rd Runner-Up** in **AI Buildathon'24** among **2K+ participants**.

Finalist **Industrial Expo'24** among **5K+** participants. **Research:** [IEEE](#) Wearable Device for Healthcare Diagnosis.

Created website, handling over **10K+** users - **Advitya'25 cultural fest**. **Finalist** in SIH Internal Hackathon'23.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, SQL, HTML, CSS
Frameworks and Database: React.js, Node.js, Express.js, FAST & REST API, MongoDB, PostgreSQL, Firebase
Developer Tools: AWS, Docker, Redis, Github, Git, Cloudinary, Langchain, Crew.ai, Hostinger, Postman, ChromaDB