

Lokesh Poluru Velayudham

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SUMMARY

Full-stack & AI-focused Software Engineer with 4+ years' experience delivering **marketplace and matching platforms** from MVP to scale in fast-paced startups. Proven track record building **high-performance, fault-tolerant systems** (3× throughput, -40% ops) across SaaS, healthcare, and recruiting domains. Skilled in **React.js, Next.js, TypeScript, Postgres, GCP/AWS**, and **user-driven product design** with end-to-end ownership.

SKILLS

Languages & Frameworks: Java, Python, C++, TypeScript, JavaScript, FastAPI, Node.js

Frontend: Next.js, React.js, HTML5, CSS3

APIs & Concurrency: REST, GraphQL, WebSockets, JWT, API Versioning, Concurrency

Databases & Messaging: PostgreSQL, MySQL, MongoDB, Redis, Kafka

Cloud & DevOps: AWS (EC2, S3, RDS, Lambda), Docker, GitHub Actions, CI/CD

ML & AI: PyTorch, scikit-learn, BERT, GPT (RAG)

Architecture & Systems: Microservices, Distributed Systems, API Optimization, Performance Tuning

Tools & Practices: Git, Jira, Agile (Scrum, Kanban)

EXPERIENCE

Software Engineer

BioInVision Inc

January 2025 - Present, Cleveland, OH

- **Engineered** IschemiaViz, a 3D medical imaging viewer (**C++**, **Qt**, **OpenInventor**) integrating the proprietary **ABHC** algorithm; improved perfusion accuracy **15%**, reduced manual processing **40%**, and achieved sub-2s AI diagnostics on **10GB+ datasets** via Python-C++ multithreading (-3× throughput).
- **Developed** CryoViz Web, enabling real-time review of **500MB+ cryo datasets** with <1s slice load; designed volumetric viewer (**Next.js**, **WebGL/vtk.js**) streaming from **Azure Blob** and **MongoDB**, with interactive annotation support.
- **Implemented** a hierarchical parent-child annotation schema with bidirectional linking in the 3D volume data model, enabling relational queries and synchronized rendering across annotation layers, reducing review iteration cycles **25%**.
- **Built** a parallelized streaming pipeline for cryo imaging datasets using **Python async workers**, **Azure Blob chunked transfers**, and **memory-mapped file access**, reducing load times from minutes to **<15 seconds**.
- **Optimized and scaled** TissueReM, cutting virtual staining time **30%** and manual workload **50%** via mixed-precision inference, model pruning, and multi-threaded data loaders; implemented **multi-GPU inference** and batched processing to reduce pipeline execution time **40%**.

Software Developer | RA | TA

Case Western Reserve University - Undergraduate Research Office

January 2024-January 2025, Cleveland, OH

- **Owned design and delivery** of an AI-assisted judge-student matching platform (**MERN**, **AWS**) that automated pairing for **1,500+ students** and **250+ judges**, cutting setup time from **days to minutes** and eliminating manual matching errors.
- **Architected event-day operations module** with **real-time status tracking** and **automated notifications**, reducing coordination overhead **40%** and ensuring on-time judging sessions at scale.
- Delivered **Python** and **AI/ML** instruction to **50+ students** with high completion rates; mentored **30+ middle school students** in AI and engineering through **Think[STEM]** outreach program.

Full Stack Engineer

Alter Cabs

June 2023 - January 2024, Chennai, India

- **Architected and delivered** a ride-hailing SaaS backend (**Ruby on Rails**) with **React.js** frontend, scaling to **4,000+ drivers** across multiple regions with high availability.
- **Developed and launched** the "Quick Ride" feature, cutting ride confirmation time to **<5 minutes** through optimized dispatch algorithms and real-time matching.
- **Implemented** AWS-hosted, Dockerized **CI/CD pipelines**, improving deployment reliability and reducing rollback incidents **35%**.

Full Stack Engineer (Founding Member)

Foxx Technologies

June 2019 - May 2023, Chennai, India

- **Designed** backend for B2B SaaS ordering platform (**Node.js**, **Redis**), serving **50+ enterprise clients** with high concurrency and fault tolerance.
- **Engineered** Firebase- and Golang-based microservices, boosting search performance **30%** and enabling sub-second results.
- **Directed** MVP delivery ahead of schedule, helping secure **₹4.5M funding** and generate **₹0.75 crore revenue** in 6 months.

Software Developer

Guvi Geek Technologies

January 2019 - June 2019, Chennai, India

- Owned development of a PHP-based hiring platform module connecting **50 employers** with **1,000+ students** in 4 months, streamlining recruitment.
- Integrated microservices architecture to improve system performance **25%** and enhance scalability for growing employer-student activity.
- Optimized backend workflows to increase employer engagement **30%** and drive a **15% revenue uplift** through improved recruitment efficiency.

EDUCATION

Master of Science in Computer and Data Science

Case Western Reserve University · Cleveland, Ohio · 2025 · 3.9

Bachelor of Engineering

Anna University · Chennai, TN · 2018 · 7.83