Rahul Challa

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EDUCATION

University of California, Riverside | *Masters of Science in Computer Science* **Sept 2024 - Dec 2025 (Exp)**

- **Honors:** HEST Scholarship Awardee (2025)**, Top 3** @ UCRPC (2024).

SOA University | *Bachelors of Technology in Computer Science and Engineering* **Nov 2020 - Sept 2024**

- **Honors: Top 10** @ Byte Verse by NIT Patna (2023), **Top 10** @ Xperiments by UST (2022), Google Cloud Facilitator (2022).

EXPERIENCE

Graduate Research Project, Autotuning Framework | *University of California, Riverside* **July 2025 - Current**

- Designed an **autotuning framework** for **CPU** using **reinforcement learning**, reducing simulation error to under **5%.**
- Built **validation pipelines** on **Google cloud platform**, enabling large scale **CPU** experiments with better reproducibility.
- Integrated and benchmarked **MacSim, Sniper, and Z-Sim simulators**, enhancing cross-architecture performance validation.

Software Engineering Fellow | *Headstarter AI* **July 2024 - Sep 2024**

- Automated the CI/CD pipeline using **Docker** and **GitHub Actions**, reducing deployment cycle time by **25%**.
- Optimized **PostgreSQL** schemas and **ETL workflows**, cutting analytics query latency by **18%** across production datasets.
- Developed **event-driven AWS Lambda microservices** to handle **10K+ API requests**/month, increasing system scalability.

Undergraduate Student Researcher, ASL Translation System | *SOA University* **Feb 2024 – Jun 2024**

- Led a team to build a **real-time ASL-to-text translation system** using **OpenCV and MediaPipe**, achieving **98.9% accuracy**.
- Developed a **Random Forest Classifier** on a custom dataset of **13K+** hand gesture images, improving inference time by **35%.**
- Engineered a **modular inference pipeline**, enhancing scalability and maintainability for future model integration.

Data Science Intern, Risk Management | *Coding Rajas Technologies* **Aug 2023 - Sep 2023**

- Deployed a real-time **TensorFlow**-based fraud detection model with a **94% F1-score**, processing **1000 transactions/min.**
- Optimized **preprocessing pipelines**, reducing turnaround time by **40%** and improving fraud detection precision.
- Developed **RESTful API endpoints and dashboards** to visualize model outputs, reducing manual fraud review time by **30%.**

Artificial Intelligence Intern, Model Training | *Pantech ProEd Pvt Ltd* **Jul 2023 - Aug 2023**

- Created a **real-time** image classification service using **Flask** and **TensorFlow**, achieving **85% accuracy** on real world use cases.
- Automated data labelling and model training pipelines with **Bash scripts**, reducing setup and retraining time by **50%.**
- Built and deployed a **Flask-based REST API** for real-time classification, enabling seamless model integration into web systems.

PROJECTS

TexMex – A LaTeX Editor for VS Code | TypeScript, VS Code API, Node.js | VS Code Marketplace | 500+ Users

- Engineered a **VS Code extension** enabling real-time **PDF preview** and **auto-sync** for .tex files, reaching **500+ active users**.
- Optimized rendering and event-handling for **10K+ line LaTeX documents**, cutting scroll latency to **under 100 ms**.
- Published to **VS Code Marketplace** and maintained a **4.5 rating**, showing consistent user satisfaction.

BitTrader – Self Supervised Trading Model | FastAPI, Docker, Algorithmic Trading, Mahine Learning | GitHub

- Deployed a **self-Training** trading model executing **1,200+** simulated BTC trades with an **8.3% ROI** using live **Gemini data.**
- Built a **containerized FastAPI backend** on **Render Cloud** with **99.9% uptime** through **GitHub Actions CI/CD.**
- Integrated **real-time performance tracking** and **Telegram alerts** to monitor trade outcomes and strategy seamlessly.

Distributed API Rate Limiter | GoLang, Redis, gRPC, Docker, CI/CD | GitHub

- Engineered a **distributed Go rate limiter** handling **100k+ RPS** via **Token Bucket**, ensuring sub-millisecond latency.
- Implemented atomic operations using **Redis** to eliminate race conditions, reducing **API abuse** by **99%**.
- Built a **Dockerized gRPC/REST microservice** to support diverse clients, cutting infrastructure overhead by **40%.**

FinSight – AI-Powered Personal Finance Platform | React, FastAPI, PostgreSQL | GitHub

- Engineered a platform that processes bank statements using **FastAPI, PostgreSQL, and Redis** generating insights.
- Developed a **ML transaction classifier** with **94% category accuracy** across major spend types.
- Integrated an **AI insights engine** generating **personalized budgets**, reducing overspend.

SKILLS

Python, C++, Java, JavaScript, TypeScript | FastAPI, Flask, Node.js, Go, Redis, gRPC, REST APIs, Docker, GitHub Actions, Linux, CI/CD | React, TailwindCSS, VS Code API | TensorFlow, PyTorch, Scikit-learn, NLP, Time Series, Computer Vision | PostgreSQL, MongoDB, DynamoDB | AWS (Lambda, S3, EC2), Supabase, Render | Pandas, NumPy, OpenCV, MediaPipe