

Rahul Babu

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SUMMARY

Software Engineer with 3+ years of experience building full-stack applications and backend systems. Experienced in Agentic AI systems, LLM orchestration, and production-grade ML and NLP pipelines. Delivered solutions with using React, JavaScript, Python and Java. Deployed microservices on AWS and GCP with CI/CD. ([AWS Certified Solutions Architect – Associate](#)).

EDUCATION

Arizona State University, Tempe, AZ - *Master of Science in Computer Science* Aug 2023 - May 2025
Courses: Statistical Machine Learning, Data Mining, Distributed Database Systems, Graduate research in AI and Data Science.

EXPERIENCE

Hovian Inc. | *Software Engineer* | *Cucamongo, CA* July 2025 - Dec 2025

- Implemented a hybrid backend communication layer using **Node.js** with **REST (HTTP) APIs + WebSockets** to stream real-time Outlook notifications and support AI-generated responses
- Built and maintained the desktop UI (**JavaScript, HTML5, CSS3**), shipping 10+ reusable renderer views (chat, settings, toggles) with tabbed/multi-view navigation for notification + workflow management.
- Shipped an “Animated GIF” feature by building a **Python** module that converts text prompts into GIF outputs using **OpenAI LLMs**, sprite-sheet slicing, and image processing (PIL, imageio).

ASU Decision Theater Network | *AI Software Engineer* | *Tempe, AZ* May 2024 - May 2025

- Performed geospatial opioid risk analysis using **PostGIS** and **spatial SQL**, and developed an ML pipeline in **Python** and **R** using **XGBoost** and **ensemble methods** on 50K+ census records to generate regional risk predictions.
- Delivered a real-time risk dashboard (**React + TypeScript**) backed by **FastAPI** services, containerized with **Docker** and deployed on **Google Cloud Run** for low-latency filtering. ([Live Link](#))
- Automated data collection using **Python** and **Selenium**, gathering 1,000+ healthcare survey responses and 795 climate policy documents, analysis and evaluation to measure LLM resilience on heat and healthcare prompts.
- Deployed a **RAG**-based chatbot using **Llama 3**, **LangChain**, and **Chroma** on Jetstream2 HPC to summarize 100+ interview transcripts for the Maricopa County and support ASU’s LLM resilience research. ([Live Link](#))

InnoHat Systems | *Software Developer* | *Chennai, India* Jan 2022 - July 2023

- Designed hybrid storage using **PostgreSQL** for transactions and **MongoDB** for product metadata and user reviews; reduces schema-change overhead while keeping financial data ACID-compliant.
- Built **Flask** REST APIs for checkout, refunds, and shipment events, and integrated **Apache Kafka** to asynchronously process order-created, payment, and fulfillment events, handling 50K+ events/day during peak traffic.
- Orchestrated **ETL pipelines** in Python (**pandas + SQLAlchemy + PyMongo**) to merge order history with review sentiment data; optimized pipeline runtime by 40% on 20M+ rows + 5M+ docs.
- Built internal and customer facing UI modules using **Angular + TypeScript**, implementing component-based pages and API integration to support operational workflows.

PROJECTS

ForecastHub | **AI Weather Intelligence Platform** - React, FastAPI, PostgreSQL, MLflow, Vercel, Render

Live: <https://forecast-hub-ai.vercel.app/> | Github: <https://github.com/rahul-1415/forecast-hub>

- Built a multi-dashboard weather intelligence platform using **React**, **FastAPI**, and **PostgreSQL**, delivering daily planning, outfit/packing, health alert, and anomaly detection workflows.
- Implemented **MLOps** automation with **GitHub Actions + MLflow** for hourly ingestion, daily model training, experiment tracking, versioning, and deployment across **Vercel** and **Render**.

Loadouts | **Social Media Platform for Tech Collections** - React, Next.js, TypeScript, Tailwind CSS, Supabase, Vercel

Live: <https://loadouts-demo.vercel.app/> | Github: <https://github.com/rahul-1415/loadouts>

- Built a **Next.js** full-stack social platform for sharing curated tech collections, implementing **server-side rendering (SSR)**, dynamic routing, and modular UI components for scalable content discovery.
- Integrated **Supabase** authentication with **OAuth** based **Google** and **GitHub** logins, along with realtime database flows and edge-deployed APIs to support user profiles, collection publishing, and category-based content feeds..

SKILLS

Backend & API Development: Python (Pandas, NumPy, Async Programming), Django, Flask, FastAPI, Java, RESTful API Development, Microservices, Scalability, Database Management (SQL, PostgreSQL, MySQL).

Frontend & Full-Stack Development: Angular, React, TypeScript, HTML5, CSS3, JavaScript (ES6+), State Management, Component Architecture, Lazy Loading, Node.js & Express, GraphQL, API Integration, Responsive UI Design, Webpack.

Machine Learning & AI Engineering: LLM Development (GPT- 4, LLaMA), LangChain, RAG Frameworks, Prompt Engineering & Optimization, TensorFlow, PyTorch, Scikit-learn, XGBoost, Hugging Face Transformers, spaCy (NLP).

Cloud, Data & DevOps: AWS, Data Pipelines (ETL, Ingestion, Validation, Warehousing, Transformation), Git/GitHub/GitLab.