

Ripunjay Kashyap

AI / ML Engineer

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EDUCATION

B.E. Computer Science Engineering

2021 - 2025

Sathyabama Institute of Science and Technology, Chennai, India

TECHNICAL SKILLS

ML / AI:	Python · PyTorch · TensorFlow/Keras · XGBoost · Scikit-Learn · SHAP · Pandas · NumPy
Audio & Speech:	WhisperX (STT) · Kokoro/Qwen TTS (self-hosted) · HTDemucs · LAION CLAP · Librosa
LLM & Agents:	LangGraph · LangChain · RAG · RAGAS · LLM-as-judge evals · ChromaDB · Qdrant · Llama · Ollama · Groq · OpenAI-compatible APIs
Backend & MLOps:	FastAPI · Flask · Pydantic v2 · PostgreSQL · MySQL · Docker · Podman · MCP (FastMCP) · Modal · Render · LangSmith
Tools:	Claude Code · Git · Linux · Kaggle GPU notebooks
Frontend:	React · Next.js · Tailwind CSS · Vite · Flutter · Mapbox GL JS

EXPERIENCE

Open Source Developer & Maintainer - Audio Sonic MCP Server

2026 - Present

Independent Open Source - LobeHub, Glama & public MCP registries | Bangalore, India

[GitHub](#) [LobeHub](#)

FastMCP · HTDemucs · LAION CLAP · Librosa · Modal · asyncio · Docker

- Built and published an MCP server exposing tempo, key, and mood analysis as callable tools for any LLM client; distributed via LobeHub, Glama, and a GHCR container image.
- Cut cold-start latency by **~40 s** with model pre-loading, and added an async queue so tool calls never time out.
- Runs in production today as the audio backend for SoundReverse.

Undergraduate Research & Development - AR/VR Campus Navigation System

Aug 2023 - Jun 2025

Sathyabama Institute of Science and Technology | Chennai, India

[Demo](#)

Flutter · Mapbox GL JS v3 · ARCore/Unity · Next.js · Garmin GPS survey

- Built and deployed an AR campus navigation app now running as live university infrastructure.
- GPS-surveyed every campus building myself to build the location database from scratch.
- Shipped a web demo with **4** navigation views: 2D map, 3D model, satellite, and AR.

PROJECTS

SoundReverse - AI Mastering Analyst

[GitHub](#) [Demo](#)

LangGraph · Gemini Flash · Modal · Supabase · LangSmith · FastAPI · FPDF2

- Built a **5**-stage multi-agent pipeline where a reviewer agent corrects the analyst's mistakes.
- Added **4** automatic checks that reject physically impossible audio settings.
- Kept all maths in Python rather than the model, so the same track always gives the same result.

Zenic - AI Health & Nutrition Assistant

[GitHub](#)

Python · LangGraph · Groq (Llama 3.3 70B) · ChromaDB · Qdrant · SentenceTransformers · RAGAS

- Built a search system over **10,201** documents scoring **0.907** on answer-faithfulness tests.
- Combined keyword and semantic search to fix the nutrition tables that semantic search kept missing.
- Computed all nutrition maths in Python so the model cannot invent health figures. **53** tests.

SHPS v2.0 - Structural Health Prediction System

[GitHub](#) [Demo](#)

XGBoost · Keras/LSTM · Flask · SHAP · Pydantic v2 · Docker · ReportLab

- Predicts a structure's remaining service life as a **95%** confidence range, not a single number.
- Reached **R²=0.98** accuracy with an average error of 1.58 years.
- Cut the per-prediction risk breakdown from seconds to under **50 ms**.

PUBLICATIONS & RESEARCH

AR/VR based Campus Navigation System (CNS)

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