Sai Karthik Kagolanu

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SUMMARY

MSc Robotics graduate specializing in Machine Learning, Computer Vision, and NLP systems. Professional experience as ML Engineering Intern with hands-on expertise training and optimizing deep learning models using Python, PyTorch, and TensorFlow. Two-time hackathon winner with demonstrated technical depth and collaborative experience. Seeking graduate ML Engineer role.

EXPERIENCE

Machine Learning Engineering Intern Jun 2023 – Aug 2023
Infyz Solutions Private Limited Hyderabad, India

- Implemented data preprocessing pipelines for classification models using pandas and NumPy, supporting team's ML workflows
- Conducted model evaluation experiments comparing scikit-learn algorithms, documenting findings for production deployment decisions

SKILLS

ML/AI: Python, PyTorch, LangChain, TensorFlow, scikit-learn, OpenCV, ONNX, NLP, RAG

Engineering: C++, SQL, FastAPI, Flask, Docker, Git, CI/CD, PostgreSQL, pandas, NumPy

Infrastructure: AWS, Prometheus, Grafana, CUDA, ChromaDB

PROJECTS

Computer Vision Classification Suite | *Production-Ready ML System* Feb 2026

- Achieved 88.9% accuracy on 14,034-image dataset using TensorFlow MobileNetV2, outperforming PyTorch CNN by 1.6%
- Developed production infrastructure with 93% test coverage (51 tests), Prometheus/Grafana monitoring, and automated security scanning
- Engineered C++ inference engine with ONNX Runtime for cross-platform deployment (5,200 LOC, 86 files)
- Deployed comprehensive CI/CD pipeline with type checking, load testing, and automated deployment scripts

RAG Demo – Industrial Defect Analysis | *NLP Engineering Project* Jan 2026

- Developed Retrieval-Augmented Generation system for Friction Stir Welding defect analysis with 96% test coverage (105 tests)
- Implemented hybrid retrieval architecture (BM25 + vector search) with cross-encoder reranking and RAGAS evaluation framework
- Deployed Streamlit application with ChromaDB vector store, conversation memory (10-turn context), and CI/CD quality gates achieving sub-4s response times

Retail Odyssey – Multi-Agent AI Fashion Assistant | *Award-Winning Hackathon (Team of 4)* Nov 2025

- Won Best AI Agents on ARM Award at HackSheffield10 with multi-agent fashion recommendation system using 5 specialized agents
- Designed agent orchestration handling 20+ message context sharing with sequential LLM calls across vision, search, and conversation agents
- Integrated Google Search grounding for real product retrieval with Prometheus/Grafana monitoring (9 metrics tracked)

SheffAware – Spatial Clustering Platform | *Sheffield AI Hackathon Winner (Team of 4)* May 2025

- Won overall prize at Sheffield AI Hackathon (10+ teams) for spatial analysis platform using hierarchical clustering
- Delivered interactive dashboard analyzing Sheffield City Council open data across 8 urban features, hosted on Streamlit Cloud

Gesture & Speech Recognition for Robotic Control | *MSc Dissertation* Sep 2024

- Achieved 96.98% gesture accuracy and 95.03% speech accuracy using custom 33-layer CNNs trained on 33,500 samples
- Engineered audio preprocessing pipeline with 50-band Bark-spectrum extraction, improving accuracy by 12% vs raw audio
- Deployed real-time inference controlling 11-servo robotic arm via Arduino serial communication at 57,600 baud

EDUCATION

MSc Robotics (Merit) Sep 2023 – Sep 2024
University of Sheffield Sheffield, UK
Dissertation: Robotic Arm Control Using Gesture and Speech Recognition (96.98% and 95.03% accuracy)

BTech Mechanical Engineering (GPA: 8.84/10) Jul 2019 – May 2023
Vellore Institute of Technology Chennai, India
Dissertation: Surgical Collaborative Robot using Transformers and EfficientNet

AWARDS

HackSheffield10 Winner – Best use of AI Agents on Arm (HackathonsUK) Nov 2025

Sheffield AI Hackathon Winner – Overall Winner (SheffAware project) May 2025

ADDITIONAL INFORMATION

Work Authorization: Graduate Visa, eligible for Skilled Worker sponsorship.

Availability: Immediate, Open to relocation and remote opportunities