

# Sajan Kumar

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## PROFESSIONAL SUMMARY

Senior Machine Learning Engineer with 5+ years designing and deploying AI systems at scale across computer vision, NLP, and distributed computing. Expert in building production ML pipelines, LLM integrations, and real-time inference systems serving millions of users. Proven track record delivering end-to-end AI solutions from research to enterprise deployment across Surveillance, Fintech, Transportation, and Cybersecurity domains.

## WORK EXPERIENCE

### Purdue University - TASI

Graduate Research Assistant

Indianapolis, Indiana

Jan 2025 - Present

- Developing optimized multi-object tracking algorithms for distributed CCTV networks using hybrid LLM+CNN architectures, achieving 80%+ improvement in GPU utilization and 40% reduction in frame processing latency
- Architecting production-grade computer vision pipeline for Indiana Department of Transportation (INDOT) to process 10K+ video streams daily with real-time safety analytics and automated incident detection
- Enabling data-driven infrastructure planning decisions while reducing manual monitoring costs by 60% through intelligent video analysis
- Implementing cross-camera re-identification using transformer-based embeddings and distributed inference optimization at scale

### Abstract Security

Senior Machine Learning Engineer

Remote, USA

Oct 2024 - Present

- Led end-to-end LLM integration for SIEM platform as the technical lead of a 2-person team, building automated tooling with LangGraph and vLLM that reduced feature development cycles by 40%
- Designed a multi-agent system using LangGraph, custom rerankers, and RAG for GenAI SIEM processing of over 20TB+ security data, automating 60-70% of threat triage and reducing analysis time from hours to minutes
- Leading an intelligent automation suite that integrates fine-tuned models (vLLM) with security scanning tools, improving vulnerability detection accuracy by 35% for over 17 enterprise clients

### WCG Clinical

Senior Data and Analytics Engineer

Remote, India

Aug 2024 - Oct 2024

- Optimized GenAI and Embeddings APIs, reducing latency by 35% and cloud spending by 33% while improving deployment efficiency for clinical data processing workflows
- Architected automated deployment pipelines using Terraform and CI/CD processes, enhancing development efficiency and scalability for the healthcare analytics platform

### CoinDCX

Senior Software Engineer

Bangalore, India

Oct 2022 - July 2024

- Led the development of a proprietary LLM for automated portfolio management and customer query resolution, achieving 50% faster response times and handling over 100K daily interactions
- Architected and scaled Okto's DeFi application from 0 to 2M+ users, reducing onboarding time by 80% and increasing platform engagement by 2000% through wallet SDK optimization
- Built a microservices architecture using Go/Python to handle \$50M+ in daily transaction volume with 99.9% uptime and real-time fraud detection capabilities

### OurEye.ai(YC22) - Founding Member

Machine Learning Engineer

Bangalore, India

Dec 2020 - Sep 2022

- Built and optimized a real-time video analytics engine for low-powered edge devices, deploying advanced ML models (CNN, YOLO, MobileNet) with OpenCV/CUDA to achieve 40% lower latency and 3x faster processing
- Led a team of 5 engineers in automating ML pipelines using AWS SageMaker and MLFlow, cutting model deployment time by 60% and enabling scalable deployments across 500+ CCTV networks
- Accelerated video processing performance through intelligent streaming and built no-code tools to autoscan networks, reducing onboarding time from months to days

## EDUCATION

### Purdue University

M.S. Electrical & Computer Engineering | GPA: 4.0/4.0

West Lafayette, Indiana

Expected May 2026

Fully funded Research Assistantship at TASI Lab, supported by Indiana State Transportation

### University of California, Berkeley

Computer Science and Technology Entrepreneurship | GPA: 3.32/4.0

Berkeley, California

Awarded \$20,000 scholarship towards tuition for semester abroad at UC Berkeley

### SRM University AP

B.Tech in Computer Science and Engineering | GPA: 9.13/10.0

Amaravati, Andhra Pradesh

# KEY SKILLS

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**Programming:** Python, Go, TypeScript, C++ | **ML/AI:** PyTorch, TensorFlow, Transformers, LLMs (LangChain/Graph, LlamaIndex), vLLM, Computer Vision, RAG, Vector Embeddings | **MLOps:** MLflow, Docker, Kubernetes, Model Serving, A/B Testing | **Cloud:** AWS, GCP, Azure, Terraform | **Data:** SQL, NoSQL, VectorDBs, Kafka, Spark

# PROJECTS

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## BIT - Berkeley Index of Tenacity

*R, Python, IRT, Selenium, GANs, Data Science, JavaScript*

**University of California, Berkeley**

[GitHub](#)

- Developed psychometric model based on GRIT personality traits with literature-backed correlation identification to generate dynamic survey question-answer mappings for accurate individual evaluations. Currently deployed at UC Berkeley's psychometric platform and startup [Predli](#)

## AI powered Advanced Monitoring System |

*Computer Vision, Python, CCTV, Raspberry Pi, IoT Sensors, solar cells*

**Smart City Project under Andhra Pradesh Government**

[GitHub](#)

- Integrated IoT and ML technologies to improve communication, automate traffic management, and report anomalies for smart city infrastructure serving 500K+ citizens

## Maintenance System for University

*Flutter, React, MySQL*

**SRM University AP**

[GitHub](#)

- Rated 4.4★ on Google Play Store. Built mobile and web application for SRM University management enabling students and staff to lodge complaints, maintain logs, and manage employees. Application is live and available for [download](#)

# PUBLICATIONS

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- "Extended Graph Convolutional Networks for 3D Object Classification in Point Clouds", [IJACSA](#), Volume 12, May 2021.
- "A Deep Learning based approach for pin-pointing DNA-protein binding based mutations", [Springer](#), Nov 2022.

# AWARDS AND ACHIEVEMENTS

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- **OpenCV Global AI Competition 2021** - Phase 1 *Finalist* out of 1500+ teams from 60+ countries.
- **Silver Medalist** for the best research paper proposal submission on SRM Research Day 2021.
- **Hackathons**:- Unfold22 - *Winner*, Eth Denver - *Bounty Winner*, Hoohacks - *Runner Up*, SRM Hacks - *Winner*, etc.

# LEADERSHIP & EXTRA-CURRICULAR

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- **Positions Held at Organizations** :- Google ML Crash Course - *Facilitator*, Intel AI Academy - *Intel AI Ambassador*, SRM Machine Intelligence Community - *Co-President*, SRM ACM Student Chapter - *Treasurer*
- **Student Council President** :- Acted as a liaison between students and management, presenting student concerns and needs monthly to university administration
- **Student Disciplinary Committee** :- Responsible for coordinating with students and professors adhering university rules and regulations
- **Events Organized** :- Organized multiple events at SRM Campus including HackSRM, Tech, Cultural & Freshers Fest with 1000+ participants
- **Teaching Experience** :- Instructed 300+ students in Data Science and Python programming at Sai University and SRM University AP, developing curriculum and mentoring students in AI/ML concepts