Sajan Kumar

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PROFESSIONAL SUMMARY

Senior Machine Learning Engineer with 4+ years designing and deploying AI systems at scale across computer vision, NLP, and distributed computing environments. Extensive experience building production ML pipelines, LLM integrations, and real-time inference systems serving millions of users. Proven expertise in MLOps, cloud infrastructure, and leading technical teams to deliver AI solutions from research to enterprise deployment in Surveillance, Fintech, Transportation, and Cybersecurity domains.

WORK EXPERIENCE

Purdue University - TASI   **Indianapolis, Indiana**
Graduate Research Assistant   *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), processing 10K+ video streams daily with real-time safety analytics and automated incident detection, enabling data-driven infrastructure planning decisions and reducing manual monitoring costs by 60%
- Implementing cross-camera re-identification using transformer-based embeddings and distributed inference optimization at scale

Abstract Security   **Remote, USA**
Senior Machine Learning Engineer   *Oct 2024 - Present*

- Architected and deployed end-to-end LLM integration for the cybersecurity 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, thereby improving vulnerability detection accuracy by 35% for over 17 enterprise clients

WCG Clinical   **Remote, India**
Senior Data and Analytics Engineer   *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   **Bangalore, India**
Senior Software Engineer   *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 platform from 0 to over 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   **Bangalore, India**
Machine Learning Engineer   *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 and reduced onboarding time by 25% through comprehensive documentation and the implementation of best practices.

KEY SKILLS

Programming: Python, Go, TypeScript, C++ | **ML/AI:** PyTorch, TensorFlow, Transformers, LLMs (VLLMs, LangChain/Graph, LlamaIndex), 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

EDUCATION

Purdue University   **West Lafayette, Indiana**
M.S. Electrical & Computer Engineering | GPA: 4.0/4.0

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

University of California, Berkeley   **Berkeley, California**
Computer Science and Technology Entrepreneurship | GPA: 3.32/4.0

Scholarship of $20,000 towards tuition to attend a Semester at the University of California, Berkeley.

SRM University AP   **Amaravati, Andhra Pradesh**

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

PROJECTS

BIT - Berkeley Index of Tenacity   **University of California, Berkeley**

R, Python, IRT, Selenium, GANs, Data Science, JavaScript   *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 used at UCB psychometric platform and startup **Predli**

AI powered Advanced Monitoring System | **Smart City Project under AP Govt.**

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

Flutter, React, MySQL   *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

- *"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

- **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

- **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