Nikhil Sharma

Machine Learning Engineer & Researcher

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Professional Summary

Machine Learning Engineer with over six years of experience in computer vision, multimodal learning, computer aided diagnosis and secure edge inference. Authored more than 15 peer-reviewed publications and demonstrated success leading teams and deploying production-grade ML systems.

Key Technologies

Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Large Language Models, Multimodal Learning, PyTorch, TensorFlow, Python, AWS, Docker, Kubernetes, MLOps, Artificial Intelligence, Data Science, Edge Computing, Medical AI, Generative AI

Technical Skills

Languages: Python (Expert), C++ (Proficient), MATLAB
ML/DL: Computer Vision, NLP, LLM, Audio Processing, Multimodal Learning
Frameworks: PyTorch, TensorFlow, MXNet, OpenCV, Scikit-learn
Cloud & DevOps: AWS (EC2, S3, Lambda), GCP, Docker, Kubernetes, MLflow, CI/CD
Specializations: MLOps, Model Optimization, Edge Deployment, Medical Imaging, Generative AI

Professional Experience

Research Collaborator - Stanford SPrinT
Stanford University — Palo Alto, CA — 2023-Present

- Developed multimodal neural network to detect drug-induced behavioral changes in lab animals, reducing manual observation workload
- Deployed ML model on Raspberry Pi for real-time activity monitoring, streaming to AWS for inference
- Delivered second-by-second behavioral predictions with analytics for neuroscience collaborators

Research & Teaching Assistant
Illinois Institute of Technology — Chicago, IL — 2023-2025

- Led research on diffusion-based activity recognition; authored 2 publications including MMM 2025
- Developed coursework in Deep Learning and Reinforcement Learning; supervised student projects
- Prototyped 3D human mesh estimation model; proposed diffusion-based GenAI framework for skeletal motion generation

Machine Learning Engineer
Matdun Labs India Pvt. Ltd. — Hyderabad, India — 2021-2023

- Built human pose detection and face recognition modules; reduced inference time by 40% via ONNX & TensorRT
- Developed end-to-end CI/CD workflows: automated preprocessing, training, containerized deployment on AWS EKS
- Implemented model pruning and quantization, achieving 2x speedup on NVIDIA Jetson

Research Assistant - Biomedical Imaging Lab
IIT Delhi — New Delhi, India — June 2019 - Feb 2022

- Conducted chemotherapy progression analysis in pediatric Osteosarcoma patients using MRI T1 mapping. Published in EJR, 2022
- Developed automated 3D segmentation pipeline for lung nodules using adaptive region-growing. Published in JCAT, 2024

Key Projects

DepthHMR (NeurIPS 2025 Submission)
Integrated RGB to extract monocular depth for improved 3D human mesh reconstruction in multi-human scenarios.

SSDL: Sensor-to-Skeleton Diffusion (MMM '25)
Created diffusion model with Lipschitz regularization for activity recognition; achieved +2% accuracy, 30% faster training.

Long-Tailed Data Distillation
Developed Student-Teacher framework for long-tailed classification using decoupled loss and patch-wise attention.

Awards & Recognition

- ISMRM Best Paper Award, 2020
- Cisco Lab Scholarship, IIT, 2023-2025
- Stanford SPrinT Key Contributor, NIH-funded

Research Collaborations

- Stanford University: Prof. Mehrdad Shamloo (Multimodal Behavior Analysis)
- CISCO Research: Sensor-based Activity Recognition
- Illinois Tech: Prof. Yan Yan (Foundation Models)
- IIT Delhi: Dr. Amit Mehndiratta (Computer Aided Diagnosis)
- NITTR Kolkata: Dr. Indrajit Saha (ML for COVID-19)

Research Interests

Multimodal Learning, Foundation Models, Generative AI, Visual Grounding, Medical AI, Large Language Models, Computer Vision

Education

Master of Science in Computer Science
Illinois Institute of Technology
Chicago, IL — August 2023- May 2025

B.Tech in Electronics & Communication
Jaypee Institute of Information Technology
U.P., India — July 2017- May 2021