

Rojan Dahal
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SUMMARY

AI Researcher and ML engineer with 4+ years of experience designing and deploying intelligent systems that bridge AI innovation and security. Skilled in building resilient, production-grade solutions across fintech, manufacturing, and academic research environments. I am passionate about AI model reliability, generative AI safety, and secure model deployments. Experienced in developing LLM-powered applications, computer vision pipelines, and ML infrastructure in cloud-native ecosystems (AWS, GCP, Azure). Published researcher, completing an MS in Data Science, with a mission to advance AI security and trustworthiness at scale.

TECHNICAL SKILLS

Machine Learning & AI: TensorFlow, PyTorch, Generative AI, LLMs, Transformers, NLP, CNNs, Computer Vision, LangChain, RAG, Vector Databases, Model Fine-tuning

Programming & Data: Python, Java, TypeScript, JavaScript, SQL, PostgreSQL, MongoDB, Redis, ETL, Data Analytics

Cloud & DevOps: AWS (ECS, RDS, Lambda, CloudWatch), GCP (Cloud Run), Azure (Cognitive Services, IoT Hub, Functions), Docker, Kubernetes, CI/CD, GitHub Actions, Cloudflare

PROFESSIONAL EXPERIENCE

Gannon University, Erie, PA, USA

Jan 2024 - Present

Graduate Assistant

- Designed and deployed a secure local LLM inference infrastructure using vLLM, achieving 80% GPU utilization and 99.9% uptime through OpenAI-compatible APIs & Cloudflare tunnels.
- Conducting research on intelligent manufacturing and AI safety, leveraging CNNs to automate 3D printer bed leveling – improving accuracy and reducing material waste.
- Developed a lightweight authentication proxy with JWT and rate limiting to protect LLM model endpoints, maintaining <100 ms response latency under high load.
- Co-authored and presented peer-reviewed research on ML applications in additive manufacturing at NAMRC 53 | MSEC 2025.
- Collaborate with cross-disciplinary teams to integrate ML systems into IoT and robotics research projects.

BitsKraft Pvt. Ltd., Kathmandu, Nepal

Nov 2021 - Nov 2023

AI/ML Engineer

- Developed and deployed an AI-based identity verification and liveness detection system across video banking platforms, enhancing fraud prevention measures with 95% verification accuracy.
- Led efforts to improve document classification reliability by 25% through a custom CNN architectures and automated preprocessing pipelines, cutting manual review time.
- Created a signature forgery detection system using YOLOv5, achieving 90% accuracy and 40% fewer false positives – boosting trust and compliance in financial operations.
- Built RESTful ML APIs capable of handling over 5,000 daily requests with 99.9% uptime integrating OCR and model inference pipelines for real-time verification tasks.
- Partnered with backend and DevOps teams to ensure secure ML deployments in multi-cloud environments, adhering to internal compliance and scalability standards.

Samadhan Engineering, Kathmandu, Nepal

Aug 2020 - Nov 2020

Machine Learning Intern

- Designed a lane detection system with real-time curvature estimation with OpenCV.
- Implemented a reinforcement learning agent for autonomous navigation achieving 85% track completion in simulation.

EDUCATION

Gannon University, Erie, PA, USA	Dec 2025
Master of Science in Computer and Information Science Major: Data Science	
Grade: GPA 4.0	
London Metropolitan University, Nepal Campus	Dec 2021
Bachelor of Science (Hons.) Computing	
Grade: First Class Honors	

PUBLICATION & PRESENTATIONS

Dahal, R., Zhou, L., and Ji, X. (2025). Automatic Powder Bed Leveling for Direct Metal Laser Sintering Based on Machine Learning. *ASME MSEC2025*, Greenville, SC. Paper No. MSEC2025-152596.
Presented at NAMRC 53 | MSEC 2025, Greenville, SC; Poster presentation at SAMPE Baltimore-Washington Chapter's 30th University Research Symposium, University of Maryland, College Park, MD.

KEY PROJECTS

University Academic Advising Chatbot	Sep 2025
• Developed and Deployed a Hybrid RAG system (local LLM + vector DB) on GCP Cloud Run with Redis caching.	
AI-Powered Social Commerce Platform	Jun 2025
• Built a Multi-tenant SaaS with 5 microservices; implemented conversational AI using Claude API with Model Context Protocol automating 70% of support inquiries.	
Cross-Platform Mobile Application	Oct 2025
• Developed unified iOS/Android/web note-taking app with Redux state management with secure JWT authentication.	
LinkedIn Profile Analysis Tool	Aug 2024
• Automated profile scraping and analysis tool using LLMs for data interpretation with mock API testing, enabling reliable profile insights extraction and structured data processing.	
Feature Toggle Detection System	Aug 2024
• Developed a multi-language code analysis tool leveraging LLMs to automatically detect, extract, and explain feature toggles across repositories, reducing technical debt.	

COURSES AND CERTIFICATIONS

IBM AI Engineering with Python, PyTorch & TensorFlow	Oct 2025
Google Prompting Essentials (Certification by Google)	Oct 2025
Full Stack Data Science Course – Become a Data Scientist (Certification from Udemy)	Jan 2022
Machine Learning (Certification from Coursera)	Dec 2022
LangChain- Develop LLM powered applications with LangChain (Udemy)	July 2024

VOLUNTEER AND ORGANIZATIONAL EXPERIENCE

Event Organizer & Team Lead, IIC Spring Carnival	Apr 2019
• Coordinated logistics, scheduling, and team efforts to deliver successful events.	
Project Showcase Participant, IIC Industrial Fair	Oct 2021
• Presented project objectives and results to industry professionals.	