KRISTINA GHIMIRE

Bhaktapur, Nepal • 9840780361 • ghimirekristina10@gmail.com
LinkedIn • Github • Website

Machine Learning Engineer with published research in multi-agent LLM systems and NLP (IEEE, ACL), presented at AAAI 2026. Experienced in fine-tuning language and vision models, building agentic systems, and deploying ML solutions in production. Seeking opportunities to deepen research in LLM reasoning and collaborative AI.

EDUCATION

- **IOE, Thapathali Campus** *May 2021 - May 2025*
  Bachelor of Engineering, Computer Engineering

EXPERIENCES

- **Associate Machine Learning Engineer** / *Ekbana* *Apr 2025 - Present*
  - Built backend APIs for AI applications and developed agentic workflows using tools, Model Context Protocol (MCP), and related orchestration frameworks.
  - Contributed to system design, feature planning, and implementation for both in-house and client projects.
  - Fine-tuned open-source language models for real-world applications and deployment.
  - Participated in AI research projects focused on LLMs, multi-agent systems, and model optimization.
- **Poster Presenter** / *AAAI* / *Singapore* *Jan 2026*
  - Presented the poster, "Learning Collaborative Reasoning Strategies Through Trust-Weighted Multi-Agent Consensus," at the WMAC Bridge Program on Advancing LLM-based Multi-Agent Collaboration.
- **Machine Learning Trainee** / *Ekbana* *Dec 2024 - Mar 2025*
  - Built a strong foundation in machine learning and AI through hands-on experience with real-world projects.
  - Developed machine learning models and backend APIs for production-oriented applications.
  - Designed and implemented multi-agent systems and machine learning solutions.

RESEARCH PAPERS

- **Learning Collaborative Reasoning Strategies Through Trust-Weighted Multi-Agent Consensus** / *IEEE* / *Link* *2026*
  - Proposed MARL-GAT, a multi-agent reinforcement learning framework where LLM agents collaborate through adaptive strategy selection via a Graph Attention Network and a dynamic trust model that weights contributions from reliable agents.
  - Achieved substantial gains on mathematical and scientific reasoning benchmarks (ARC-Challenge, GSM8k, GSM1k), improving Llama-3.1:8B from 65.37% individual to 83.33% consensus accuracy (+17.96% relative) on GSM-1k.
- **SOMD 2025: Fine-tuning ModernBERT for In- and Out-of-Distribution NER and Relation Extraction of Software Mentions in Scientific Texts** / *ACL* / *Link* *2025*
  - Fine-tuned ModernBERT for named entity recognition and relation extraction of software mentions, developing a joint model that optimizes entity and relation losses together.
  - Achieved the best F1 score of 0.92 in the in-distribution phase and competitive out-of-distribution results (0.55, second best) in the SOMD 2025 shared task.

TRAINING

- **Research Training 2025** / *NRCC* *May 2025 - Aug 2025*
  - Completed research training in scientific research methodologies and experimental design.
  - Conducted research on improving the efficiency and reducing the size of Small Language Models (SLMs).
- **AI Fellowship 2024** / *Fusemachines* *Apr 2024*
  - Built a strong foundation in machine learning and deep learning through structured coursework and hands-on projects.
- **Data Fellowship 2023** / *Code For Nepal* *Dec 2022*
  - Completed data analysis training through DataCamp, covering Python, SQL, and data visualization.

PERSONAL PROJECTS

- **Chitran | Festive Poster Generator** *CV / NLP / Major Project / Bachelor's Degree*
  - Developed an end-to-end system that generates Nepali festive posters from English prompts using fine-tuned M2M-100 and Stable Diffusion v1.5.
  - Collected, cleaned, and processed bilingual text and image datasets for model training and evaluation.
  - Fine-tuned translation and image generation models to produce culturally relevant Nepali wishes and festive visuals.
  - Implemented custom text rendering and overlay techniques to seamlessly integrate translated wishes into generated posters.
  - Automated the complete poster generation pipeline from user prompt to final image.

- **Face Segmentation** *CV | Self Project*
  - Developed a face segmentation model using YOLOv8 to identify facial components including eyes, ears, nose, mouth, eyebrows, face, and neck.
  - Trained and evaluated an instance segmentation model for accurate facial part localization.
  - Designed the system as a foundation for facial similarity analysis based on individual facial components.
- **MWP | Math Word Problem Solver** *NLP*
  - Developed a system to solve mathematical word problems from both text and image inputs.
  - Fine-tuned a BART model to generate mathematical equations from natural language problem statements.
  - Integrated OCR to extract math word problems from uploaded images before equation generation.
  - Implemented a recommendation module to suggest similar math word problems for additional practice.
- **ResuMate | Automated Resume Screening System** *NLP | Minor Project | Bachelor's Degree*
  - Developed an automated resume screening system that ranks resumes against job descriptions.
  - Extracted semantic features from resumes and job descriptions using machine learning models.
  - Leveraged pre-trained FastText embeddings to generate vector representations of textual data.
  - Ranked candidates using a weighted semantic similarity scoring mechanism.

CERTIFICATES

- **Deep Learning Specialization (DeepLearning.AI)** / *Coursera* *Completed January 2025*
- **Mathematics for Machine Learning and Data Science Specialization (DeepLearning.AI)** / *Coursera Completed November 2023*
- **Machine Learning Specialization (DeepLearning.AI)** / *Coursera* *Completed July 2023*
- **Become a Python Master Course** / *Programiz* *Completed February 2023*

TECHNICAL SKILLS

- **Languages:** Python
- **Machine Learning & Deep Learning:** PyTorch, Scikit-learn, Hugging Face Transformers, model fine-tuning (M2M-100, BART, ModernBERT, Stable Diffusion, YOLOv8)
- **NLP & Computer Vision:** spaCy, FastText, OpenCV, OCR, NER & relation extraction, instance segmentation
- **LLMs & Agentic Systems:** LangChain, LangGraph, Model Context Protocol (MCP), multi-agent systems, LLM evaluation
- **Research:** Experimental design, dataset curation & annotation, benchmark evaluation, scientific writing (IEEE, ACL publications)
- **Data & Deployment:** NumPy, Pandas, Matplotlib, FastAPI, Django, AWS Lambda

VOLUNTEERING

- **TENSOR, IOE Thapathali** *Dec 2022 - Jan 2024*
  - Contributed to student community initiatives, supporting event promotion, creative design, and outreach activities.