Bishal Thapa

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LinkedIn • GitHub • Portfolio

Professional Summary

PhD researcher in Computer Science (GPA 4.0) focusing on AI Ethics and Large Language Models, with 5 peer-reviewed publications (IEEE, ICDT, EAI). Experienced in LLM fine-tuning (PyTorch, Hugging Face), RLAIF, and responsible-AI evaluation; contributor to the Google CAHSI AI for Social Impact initiative. Seeking ML/LLM Engineering, Responsible AI, or Applied AI roles.

Education

PhD in Computer Science *(May 2023 – Present)* *GPA: 4.0/4.0*
Texas State University - San Marcos, Texas

Master of Science in Electrical Engineering *(August 2021 – August 2023)* *GPA: 4.0/4.0*
Texas State University - San Marcos, Texas

Skills

Programming: Python, C, C++
ML/AI: PyTorch, Transformers/Hugging Face, Reinforcement Learning, RLAIF, Prompt Engineering, Model Evaluation, Explainable AI (XAI)
Data: Pandas, NumPy, Matplotlib, Statistics, Data Mining, Web Scraping (Selenium)
Networking/Security: TCP/IP, MQTT, IoT, LoRaWAN, LTE, Wireshark, Nmap, Lightweight Crypto
Web: HTML, CSS, Django
Languages: English (Fluent), Nepali (Native), Hindi (Proficient), Spanish (Beginner)

Publications

1. **"Evaluation of Ethical Decision Making in Large Language Models Across Classical Moral Frameworks"** IEEE AITest, 2025
2. **"StressLLM: Large Language Models for Stress Prediction via Wearable Sensor Data"** IEEE ICCE, 2024
3. **"Integrating Human Preferences for Moral Decision Making in Autonomous Vehicles"** EAI SmartSP, 2024
4. **"Intelligent Cipher Transfer Object for IoT Data Security"** International Journal on Advances in Networks and Services, 2023
5. **"Comparative Performance of TCP and MQTT"** International Conference on Digital Telecommunications (ICDT), 2023

Research Experience

Google CAHSI Research - AI for Social Impact *2024 – Present*

- Developed RLAIF framework on 100K+ ethical scenarios for improvement in human preference alignment scores using custom reward modeling
- Implemented advanced prompt engineering techniques across 3 LLM architectures (Gemini, Llama2/3, Mistral)
- Collaborated with Google researchers and Dr. Heena Rathore to advance AI safety standards and ethical computing frameworks

Text Clustering Analysis for AI Ethics Research *2024*

- Conducted large-scale clustering analysis of 100K+ LLM-generated ethical justifications using ETHICS dataset and multiple embedding methods (BERT, RoBERTa, sentence-transformers)

- Discovered 5 latent reasoning patterns tied to model correctness and ethical frameworks, advancing interpretable insights into AI moral reasoning

Health Biomarker Analysis using Large Language Models *2024*

- Used LLM models for stress level prediction from wearable sensor data (heart rate, sleep patterns, activity metrics)
- Analyzed diverse health datasets to identify key biomarkers for mental health indicators

Question Answering System Development *2024*

- Built and evaluated 3 transformer-based QA models: pre-trained BERT, custom transformer from scratch, and LSTM
- Optimized model performance using hyperparameter tuning and data augmentation

IoT Network Infrastructure Projects *2023*

- Configured private LTE network on Anterix infrastructure supporting diverse IoT devices
- Collaborated with Everynet to deploy LoRaWAN network covering 15 square miles in San Marcos
- Implemented network security protocols reducing potential vulnerabilities through comprehensive penetration testing

Experience

Doctoral Teaching Assistant - Texas State University *2023 – Present*

- **Computer Systems Security:** Taught cybersecurity fundamentals to 50+ graduate students (Fall 2024)
- **Foundations of Computer Science:** Managed lab sessions for 60+ students (Fall 2023, Spring 2024)
- Developed hands-on programming exercises and assessment materials improving student coding proficiency

Python Developer Intern *Jan 2019 – Oct 2019*

Niva Business Solutions, Kathmandu, Nepal

- Developed Django-based web application backend components serving 3+ enterprise clients
- Implemented automated testing frameworks reducing production bugs by 40% and deployment time by 25%
- Collaborated with cross-functional teams to deliver 5+ custom solutions meeting exact client specifications

Electronics Research Engineer *Nov 2019 – Feb 2020*

Datalytics Private Ltd., Kathmandu, Nepal

- Designed and simulated 20+ electrical circuits using Proteus Software
- Conducted comprehensive data analysis and created visualization dashboards facilitating data-driven decision making for 5+ projects

Leadership & Service

- **Technical Paper Reviewer:** IEEE CCNC 2025 - Federated Learning and LLM research (2024)
- **President:** International Students Organization, Texas State University (Fall 2024 - Present)
- **Conference Volunteer:** IEEE WCNC, IEEE EMBS AI Healthcare Workshop, Generative AI Workshop

Awards & Recognition

- **PhD Tuition Scholarship:** 3-year full tuition scholarship ($20,000+ value)
- **Graduate College Scholarship:** Science & Engineering Excellence Award ($2,000)
- **Research Assistantship:** Competitive funding for 4 consecutive semesters (2022-2023)
- **Perfect Academic Record:** 4.0 GPA maintained across PhD and Master's programs