

Spandan Pyakurel

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Research Interests

Novelty Detection, Uncertainty Quantification, Calibration, LLM Safety Alignment

Education

Rochester Institute of Technology

August 2022 – Present

Phd in Computing and Information Sciences

Pulchowk Campus, Tribhuvan University

Nov 2015 – Sept 2019

Bachelors in Computer Engineering

Publications

Hierarchical Novelty Detection via Fine-Grained Evidence Allocation

ICML 2024

Spandan Pyakurel and Qi Yu

Paper link: <https://proceedings.mlr.press/v235/pyakurel24a.html> 🔗

Be Confident in What You Know: Bayesian Parameter Efficient Fine-Tuning of Vision Foundation Models

NeurIPS 2024

Deep Pandey*, *Spandan Pyakurel** and Qi Yu

* equal contribution

Paper link: <https://dl.acm.org/doi/10.5555/3737916.3739340> 🔗

Learning State-Based Node Representations from a Class Hierarchy for Fine-Grained Open-Set Detection

ICML 2025

Spandan Pyakurel and Qi Yu

Paper link: <https://openreview.net/forum?id=NO7egHvBH8> 🔗

Bayesian-Informed Diverse Sampling for Calibration of Fine-Tuned Foundation Models with Evidential Ensembles

Under Review

Spandan Pyakurel, Hitesh Sapkota, Ervine Zheng, Dingrong Wang, Xumin Liu and Qi Yu

Experience

Research Assistant

Rochester, NY

Mining Lab <https://www.rit.edu/mining/> 🔗

August 2022 – Present

- Developed an evidential framework to allocate fine-grained evidence for the hierarchical novelty detection problem. The work has appeared in ICML 2024.
- Developed a state-based framework to capture hierarchical dependencies for the hierarchical novelty detection problem. The work has appeared in ICML 2025.
- Investigated calibration issues in parameter-efficient fine-tuning of vision foundation models. The work has appeared in NeurIPS 2024.
- Studied the effect of token-level uncertainty for the assessment of LLM's output generation quality.
- (ongoing work) Developing an ensemble-based solution to calibrate the output of large language models.
- (ongoing work) Investigating the security misalignment issues in large language models.

Software Engineer

Kathmandu, Nepal

Leapfrog Technology

Sept 2019 – May 2022

- Worked as a full-stack software engineer, and developed microservices for backend apis, frontend application and Extract-Transform-Load pipeline. Developed solutions in multiple languages involving python, go and javascript.

Projects

Developing machine learning models for a physically consistent system 2024 August - Present

- A collaboration project with LLE lab from the University of Rochester.
- Working on designing machine learning models that satisfy physical constraints.

DSLP: A Web-based Data Science Learning Platform 2024 May - 2025 May

- Developed R sandbox and codes for data processing, visualization, and analysis modules.
- Provided mentorship to an undergrad student for developing R codes for machine learning models.

Academic Service

- Served as a reviewer on AAAI 2025, CVPR 2025, ICML 2025, NeurIPS 2025, ECAI 2025, WACV 2026, and IEEE Transactions on Cognitive and Developmental Systems
- Invited to serve as a reviewer on ICLR and CVPR 2026

Talks

- **Research talk** on “Be Confident in What You Know: Bayesian Parameter Efficient Fine-Tuning of Vision Foundation Models” at CHAI Seminar Series 2025, RIT
- **Poster presentation** on “Be Confident in What You Know: Bayesian Parameter Efficient Fine-Tuning of Vision Foundation Models” at NeurIPS 2024 in Vancouver, Canada
- **Poster presentation** on “Hierarchical Novelty Detection” in Grad Cohort for Women 2024 in Minneapolis, Minnesota

Awards

NeurIPS 2024 Scholar Award 2024

Scholarship to attend the Grad Cohort for Women from CRA-WP 2024

RIT Ph.D. Scholarship/Assistantship 2022 - Present

Skills

Machine Learning, Computer Vision, Novelty Detection, Hierarchical Novelty Detection, Uncertainty Quantification, Evidential Learning, Data Science, Parameter Efficient Fine Tuning, Large Language Models

Python, Numpy, SQL, Pandas, Pytorch, Scikit-learn, R, Matplotlib, Canva, JavaScript, React, Huggingface