Abhinab Acharya

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SUMMARY

3rd year Ph.D. Student in Computer Science at Rochester Institute of Technology with 3+ years of industrial experience in Machine Learning research, Robotics, and Software Engineering. Current research interests include general Machine Learning, Continual Learning, and Subset Selection. Passionate about applying Machine Learning and Deep Learning techniques to solve real-world problems.

EDUCATION

- **PhD in Computing and Information Sciences** *2022 – Present*
  Rochester Institute of Technology (RIT) *Rochester, NY*
  Area of focus: General Machine Learning, Data Efficient Machine Learning, Continual Learning
  Relevant Courses: Data-Driven Knowledge Discovery, Deep Learning, Statistical Machine Learning, Software Engineering, Visual Analytics, Non-Convex Optimization
- **Bachelor's in Electrical Engineering** *2013 – 2017*
  Tribhuvan University, Institute of Engineering *Lalitpur, Nepal*
  Relevant Courses: Artificial Neural Network, Probability and Statistics, Computer Programming, Microprocessors

PROFESSIONAL EXPERIENCE

NSDevil co., Ltd. *2019 – 2022*
Software Engineer *Daejeon, South Korea*

- Research to solve Natural Language and Computer Vision problems in the education sector: Classification of Clinical Notes written by medical students; Text Classification using Graph Neural Network; Exam Cheating Detection; Examinee Face Recognition
- Work remotely from Nepal to implement server-side logic for web applications: Developed web applications for Professor Management System for KOSIN University, College of Medicine, South Korea; Learning Management System (LMS) for online course creation and learning used internationally by 50 universities

Paaila Technology Pvt. Ltd. *2017 – 2018*
Robotics Engineer *Lalitpur, Nepal*

- Development of Humanoid Service Waiter Robot capable of taking orders and delivering food; obstacle detection using camera and Lidar; optimal path detection; speech recognition; chat-bot
- Configure parameters and develop scripts to execute Robot Operating System (ROS); Embedded system programming in C++ to interface and test sensors

RESEARCH/PROJECTS

Rochester Institute of Technology, *Rochester, NY, USA* *2022 – Present*

- Working on enhancing state-of-the-art continual learning methods for image classification, with a primary focus on optimizing the utilization of past data; 14% flat accuracy improvement over past baselines and 2% over SOTA baseline; (work under progress)
- Developed a web application for Data Science Learning Platform for students outside of computing background (NSF Grant), currently as a teaching platform for over 4 courses at RIT.
- Developed a novel subset selection method (BOSS) for data efficient machine learning capable of systematically balancing the diversity and difficulty; up to 6% accuracy improvement over SOTA baseline; published in ICML 2024
- Worked on Web Service classification problem based on Graph Neural Network that can be used for recommending suitable APIs for developers; combine API and mashup information

Tribhuvan University, Institute of Engineering (IOE), *Lalitpur, Nepal* *2015 – 2017*

- Development of Robots for National Team of Nepal to compete in International ABU ROBOCON, Indonesia-2015, Thailand-2016, Japan-2017; Embedded System programming in C and C++; differential drive motion control; PID control

PUBLICATION

- **A. Acharya,** D. Yu, Q. Yu, X. Liu, "Balancing Feature Similarity and Label Variability for Optimal Size-Aware One-shot Subset Selection" – **ICML** 2024

ACADEMIC EXPERIENCE

- **Graduate Teaching Assistant** (Rochester Institute of Technology) *2023 – Present*
  Courses: Machine Learning, Computer Science I, Database System Implementation
- **Graduate Research Assistant** (Rochester Institute of Technology) *2022 – Present*
  Advised by Dr. Xumin Liu; Collaborate with MINING lab members lead by Dr. Qi Yu
- **Reviewer** for a paper submitted to Transaction of Services Computing (TSC-2023) *May 2024*
- **Poster Presentation** on "DSLP: A web-based Data Science Learning Platform" *April 2024*
  at Imagine RIT 2024

HONORS AND AWARDS

- **RIT Ph.D. Merit Scholarship/Assistantship** 2022 - Present
  Fully funded financial support from RIT including NSF grant
- **Best Engineering Award, Panasonic Award** 2016
  Received $500 equivalent reward to compete in International ABU ROBOCON 2016 Bangkok, Thailand

TECHNICAL SKILLS

Deep Learning: Vision Transformers, ResNet, LSTM, CNNs, Graph Neural Networks, Large Language Models, Language Vision Models
Programming Language: Python, MATLAB, JavaScript, C, C++, Assembly, R
Libraries and Frameworks: PyTorch, NumPy, Pandas, Matplotlib, Sklearn, SciPy, Django, Flask, JQuery, Bootstrap, NodeJs, React, MySQL, MongoDB