

WORK EXPERIENCE AND RESEARCH

- **Research Assistant** April 2024 - Present
Nepal Applied Mathematics and Informatics Institute for Research (NAAMII) Lalitpur, Nepal
Advised by Dr. Binod Bhattarai
 - Contributing actively to research projects focused on **Out-of-Distribution Detection** and **Medical Imaging**.
- **Undergraduate Research Intern** August 2023 - March 2024
Nepal Applied Mathematics and Informatics Institute for Research (NAAMII) Lalitpur, Nepal
Advised by Dr. Binod Bhattarai
 - Collaborated on an **Active Learning** project to determine the most effective uncertainty-based sampling technique for handling unbalanced datasets in a multi-class object detection task.

EDUCATION

- **Pulchowk Campus - Institute of Engineering, Tribhuvan University** November 2019- April 2024
B.E in Electronics, Communication and Information
 - Academic Supervisor: *Basanta Joshi, Ph.D.*
 - Capstone Project: *Improving Adversarial Image Robustness For Preventing Image Manipulation*
 - Graduated with **First Division honors**, achieving an aggregate of **75.73%** and ranked among the top-performing female students in the program.

PROJECTS

- **Improving Adversarial Image Robustness For Preventing Image Manipulation** October 2023 - April 2024
Academic Project [Link to Repo](#)
 - Tools & Technologies used: Python, PyTorch
 - Developed an effective JPEG-resistant image immunization pipeline to counter text-guided AI manipulation, specifically for text-guided diffusion models. Additionally, I studied the influence of text prompts on the success of image immunization against these text-guided diffusion models.
- **Real-Time Visual Element Generation Using GANs** December 2022 – April 2023
Academic Project [Paper](#) | [Link to Repo](#)
 - Tools & Technologies used: Python, PyTorch, Unity, Barracuda
 - Developed a real-time neural rendering technique for generating realistic grass in video games. My task was to experiment with existing architectures, perform result analysis, and design new architectures that achieved both visual fidelity and low inference time.
- **Depth Estimation Using Stereo Vision** April 2022 – June 2022
Personal Project [Link to Repo](#)
 - Tools & Technologies used: Python, OpenCV, PyTorch, MATLAB
 - Developed a computer vision system to detect and estimate the position of a ball in the opponent team's robot using stereo vision and YOLOv5, with position estimation in real-world coordinates.
 - Created a custom dataset of 3000 images for ball localization.

TECHNICAL SKILLS

Language: Python, LaTeX, C/C++, MATLAB
System: Linux, Windows
Software: Emacs, Git, Arduino IDE
Machine Learning Framework: PyTorch
Electronics: Arduino, Raspberry Pi Pico, PCB design, Soldering

AWARDS AND HONORS

Medical Out-of-Distribution Analysis Challenge, MICCAI 2024 - 5th Place, Pixel-level Task	October 2024
Hacking for Humanity 2023, Nepal's largest all female hackathon, 2nd Runner Up	February 2023
GritFeat AI Health Hackathon - 1st Position	January 2023
Ace Ignite 2022 Hackathon, 1st Position	November 2022
ABU-Robocon 2022, 2nd Runner Up	August 2022
ABU-Robocon 2022, Nagase Award	August 2022
3rd Annual Nepal AI School - Full Scholarship	December 2021
Mahatma Gandhi Scholarship	2017-2018

MAJOR LICENSES AND CERTIFICATIONS

AWS	<u>AWS Academy Graduate - AWS Academy Cloud Architecting</u>
DeepLearning.AI	<u>Convolutional Neural Networks</u>
DeepLearning.AI	<u>Natural Language Processing with Probabilistic Models</u>
DeepLearning.AI	<u>Sequences, Time Series and Prediction</u>
Coursera Project Network	<u>Neural Style Transfer with TensorFlow</u>
Udemy	<u>Practical Machine Learning by Example in Python</u>

AFFILIATIONS

- Event Manager *December 2021 - February 2023*
IT Club, Puchowk Campus
 - Organized five events, each attended by approximately 50 students, covering topics from low-level system programming to UI/UX design.
 - Oversaw technical setups and logistics for the club events.
- Student Member *December 2019 - August 2022*
Robotics Club - Pulchowk Campus
 - Worked on multi-view geometry and object localization using stereo vision for a ball throwing robot in ABU-Robocon 2022.
 - Mentored junior members for ABU-ROBOCON 2023.

VOLUNTEER EXPERIENCE

- AI Trainer, Right to Information *10th August - 14th August, 2024*
Sancharika Samuha, The Asia Foundation, USAID Nepal
 - Led an AI training session in eastern Nepal with 50 journalists from 5 districts, focusing on enhancing their understanding of AI technology.
 - Provided foundational AI knowledge and conducted hands-on training, demonstrating how tools like ChatGPT, DALL-E, and Claude can be leveraged by journalists in Nepal to enhance productivity.
- Children in Technology, 2023 *26th November - 29th November, 2023*
LOCUS
 - Led a team of 13 undergraduate students to 5 underserved rural communities in eastern Nepal, engaging with 13 schools and approximately 2,000 students on internet safety and cyber law in Nepal.
- Summer STEM Initiative *21st April - 24th April, 2022*
Robotics Club, Pulchowk Campus
 - Organized a robotics training camp for 25 primary school students at Milestone School, a public school, aiming to encourage early interest in robotics and STEM.
 - Facilitated hands-on projects, such as building saltwater circuits, to enhance practical learning and engagement.

REFERENCES

- Binod Bhattarai, **Ph.D.**
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- Nanda Bikram Adhikari, **Ph.D.**
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