Nayan Bakhadyo

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PROFILE

A dedicated Satellite Research Fellow at Antarikchya Pratisthan Nepal with strong academic, professional achievement, and volunteering experience. Possess strong leadership, communication, and technical skills. Keen to pursue a career as a Data Scientist. Excited about the intersection of technology and societal impact, eager to contribute my skills and leadership to innovative projects.

EDUCATION

Orchid International College| Gaushala, Kathmandu   *2018-2022*
Bachelors in Computer Science and Information Technology (BSc.CSIT)
Aggregated Grade: 76.02%
Key Modules: Neural Network, Artificial Intelligence, Statistics, Calculus, Physics

SS College | Thimi - Bhaktapur, Nepal   *2015-2017*
Intermediate (+2)
Aggregate Score: 72.80%

SLC | Learner's Academy: 86.38%   *2014 – 2015*

EXPERIENCE

Antarikchya Pratisthan Nepal, Kathmandu   *April 2022-present*
Satellite Research Fellow
Collaborative projects with **Nepal Academy of Science and Technology (NAST)** and **Kathmandu Metropolitan City (KMC)**

PROJECTS & RESEARCH

Space-enabled Urban Solutions in Nepal (SUSN)   *Feb 2023 – present*
Project Lead
Led the strategic development and execution of the Space-enabled Urban Solutions in Nepal (SUSN) project, overseeing a dedicated team in crafting innovative solutions for urban challenges in collaboration with Kathmandu Metropolitan City (KMC). The project is also recognized at the Paris Peace Forum. Responsible for navigating the complexities of administrative processes, eliciting requirements from diverse departments like the City Planning Commission (CPC), Disaster Management Department (DMD), Traffic Management and Road Safety Department, and delivering. Built a system using Artificial Intelligence for Traffic volume analysis, a Web GIS portal for data delivery, and organized surveys for ground data collection.
- **YOLO v8 Transfer Learning, Python, PHP, NodeJs, QGIS, MySQL Google Earth Engine (GEE)**

Satellite Data Analytics Project (SDAP)   *Feb 2023 – present*
Project Lead
Harness satellite data and Artificial Intelligence to derive advanced solutions. Integration of satellite constellations including Munal and ground hardware to develop early warning systems for disasters like Glacier Lake Outburst Flood (GLOF). Facilitate comprehensive pre and post-disaster assessments.
- **SuperResolution using Super Resolution Generative Adversarial Network (SRGAN) architecture, QGIS, Google Earth Engine (GEE), Long Short-Term Memory (LSTM) Network**

Munal - High School Consortium Satellite Project   *April 2022 – Feb 2023*
Responsible for mentorship of high school students to research and develop an edge AI model using **CNN**, **U-Net** architecture that can classify and segment images taken by satellite. Soon to be launched from the Indian Space Research Organization (ISRO).
- **Micropython, Python, C-programming, OpenMV IDE**

Contact Tracing System using LBPH algorithm   *Jan 2022 – April 2022*

This is the final year project for my Bachelor's degree. It tackles the complexity of contact tracing during COVID. Along with it, the system detects people who are not wearing masks. LBPH is a face recognition algorithm. The system tracks people's movement in public places, banks, etc, and keeps logs using the MongoDB database. Later that log is utilized for tracing contact. **Python, MongoDB,** and **NodeJs** are used.

Project link: https://github.com/Nayan-Bakhadyo/LBPH/tree/master

CONFERENCE AND PAPERS

Nepal's Munal 1U Edge AI Technology Demonstration CubeSat for Targeted Earth Image Downlink Capability using Deep Learning **(International Astronautical Federation (IAF))**
Link: https://dl.iafastro.directory/event/IAC-2023/paper/75716/

Early warning system for Glacier Lake outburst flood using Satellite Technology and Artificial Intelligence.
2nd International Mountain Development and Tourism Conference and International River Congress, October 06 - 08, 2023, Pokhara
Link: https://smd-nepal.com/

Glacier Lake Outburst Flood (GLOF) analysis
9th Science and Technology Conference, Nepal Academy of Science and Technology (NAST)
July 2022

TRAINING

CanSat Training Programs - Instructed Embedded C, C-Programming, Python, and Micropython
Space AI programs - Instructed Convolutional Neural Network (CNN), Transfer Learning, Long Short-Term Memory (LSTM) and Super Resolution Generative Adversarial Network (SRGAN).

VOLUNTEERING

SAA-PHU| Bhaktapur, Nepal   *2017 – present*
Part-time Volunteer
● Develop and maintain the organization's website.
● Actively involved in different awareness programs and book donation campaigns

Pragatishil Nepal| Bhaktapur, Nepal   *2017 – 2018*
Part-time Volunteer
● Managed training for household women.

CERTIFICATIONS & PARTICIPATIONS

● NYC Scientists' Conference   *June 19, 2024*
● Honorable Mention for Compelling Visuals winner for NASA's Pale Blue Dot: Visualization Challenge:https://drivendata-public-assets.s3.amazonaws.com/nasa-open-science-gallery/nayan.bakhadyo/visual.png   *March 14, 2024*
● Training on Land Use & GIS for Technical Personnel of Municipalities within Kathmandu Valley   *Jan 29 – Feb 2, 2024*
● **Paris Peace Forum**
   Paris, France   **November 10 - 11, 2023**
   Link:https://parispeaceforum.org/projects/space-enabled-urban-solutions-in-nepal-susn/
● PHILSA SIKAP+ training program on Satellite Data Analysis
   Manila, Philippines   *May 09 – 11 2023*
● Codefest HACKATHON.   *April 2022*
● Data Science with Python, Simplilearn.   *April 2022*
● Python with Flask   *July 21 – Aug 26 2019*
● Web development with Python and Django   *Jan 08 – Feb 19 2020*

SKILLS

- Project management
- Python
- MySQL
- Django
- Selenium for task automation
- Web development with PHP
- Embedded C-programming

- Communication
- QGIS
- Machine Learning
- C-programming
- Micropython
- Microsoft 365

WORK REFERENCES

- Prof. Dr. Ramesh Maskey
  - Acamedician, Nepal Academy of Science and Technology (NAST)
  - Professor - Kathmandu University (KU)
  - Email: rmaskey@ku.edu.np
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- Abhas Maskey, PhD
  - Founder/Managing Director, Antarikchya Pratisthan Nepal
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