

Garima Acharya

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Areas of Interest

Water Resources Engineering, Environmental Engineering, Climate Change, Energy

Education

Pulchowk Campus, Institute of Engineering (IOE), Tribhuvan University

Bachelor's in Civil Engineering

Kathmandu Model College

+2 in Science

2020 to Ongoing

Rank 1: Seventh Semester

2017 to 2019

GPA: 3.71

Experience

Research Intern

—CWRSMay2024–Ongoing

Developing a **gridded climate data product for Nepal for the years 2013-2023** with a spatial resolution of 1 km at the Center for Water Resources Studies (CWRs), a research unit of the Institute of Engineering

Projects Undertaken:

- **Temperature Data Quality Analysis** - Conducted data screening and implemented the Standard Normal Homogeneity Test with bootstrapping for preparing the data.
- **Temperature Data Interpolation** - Applied Inverse Distance Weighting (IDW) for temporal interpolation using Python. Applied co-kriging for spatial interpolation to generate raster surfaces using ArcPy. Conducted quality control and validation of the interpolated data.
- **Determination of Extreme Temperature Indices** - Assessed the extreme temperature indices using CLIMPACT.

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Research Assistant

October 2021 – Ongoing

- Actively engaged as a Research Assistant under the guidance of Assoc. Prof. Shukra Raj Paudel for three years.
- Handled international collaborative research with professors from globally recognized institutions: **Eawag, Duke University, National Renewable Energy Laboratory, USA, Coventry University, and La Trobe University.**

Chief Operational Officer | MeasureMe.AI

August 2021 – January 2023

- Transformed an idea into a social startup utilizing 3D reconstruction technology for automated child malnutrition assessment, dramatically improving child health outcomes.
- Represented the company on the global stage at **Hult Prize Global Accelerator 2022** in Boston, US as one of the **top 16 social entrepreneurs of the world.**

Publications

Published

1. Shrestha, A.^{*}, Bhattarai, .N.^{*}, **Acharya, G.^{*}**, Timalsina, H.^{*}, Marks, S. J., Uprety, S., & Paudel, S. R. (2023). Water, sanitation, and hygiene of Nepal: status, challenges, and opportunities. ACS ES&T Water, 3(6), 1429-1453. DOI: <https://pubs.acs.org/doi/abs/10.1021/acsestwater.2c00303>
2. **Acharya, G.**, Shrestha S., Poudel S. & Paudel, S.R. (2024). Climate change challenges to meeting the sustainable development goals in the Hindu Kush Himalayan region, International Journal of Environmental Studies, DOI: 10.1080/00207233.2024.2322883

Under-Review

1. **Acharya, G.**, Paudel, P., Gaura, E.& Paudel, S.R. (2024). Sustainable pathways towards net-zero emission for developing regions. Energy Policy (Q1, IF=9)
2. Baniya,S., Angove,M.J., Wagle, A.,**Acharya, G.**, Khatri, M., Mainali, B., Ngo H.H., Guo W. and Paudel SR.,2023. A review of the implications of hydroxyl radical and hydrogen peroxide as earthquake chemical precursors. Journal of Hydrology (Q1, IF=6.4)

Under-Preparation

1. **Acharya, G., Shrestha, S. & Paudel, S.R. (2024).** The role of machine learning in biohydrogen economy. Book Chapter Elsevier

Awards

- **Best Student of Campus Award:** Honored as the Student of the Year-2080, among **2,000** students and 8 engineering departments of Pulchowk Campus for achievements in academic pursuits, research, and innovation.
- **Hult Prize Global Accelerator 2022, Boston, US:** Led my team to victory at the Kathmandu Regionals Summit, outshining over **30,000 teams** globally to secure a spot among the **top 16 teams worldwide**.
- **Best in Department:** Recognized as the semester topper among **200** civil engineering students at Pulchowk Campus for the seventh semester.
- **Research Grant Recipient:** Awarded a grant of \$1000 by the American Society of Nepalese Engineers(ASNEng), Washington DC, USA.
- **International Civil Engineering Symposium,2022:** Bagged 7 out of 8 gold medals in competitions, including in concrete design, model design, and others in NIRMAAN ICESS, Bangalore, India.
- **Merit-based scholarship for Bachelor's degree:** Recipient of a fully-funded, merit-based scholarship from the Government of Nepal for pursuing a Bachelor's degree in Civil Engineering. .

Projects

Hydrological and Climate Modeling | SPHY, R, Python, AquaCrop

- Assessed the contribution of glacier and snow melt in total streamflow in the Gandaki Basin.
- Projected the future climate using the Shared Socio-economic Pathways (SSPs)
- Evaluated the impact of climate change on streamflow and contribution of glacier and snow melt
- Evaluated the implications of the melt in offsetting drought impacts on agriculture and the environment.

Earthquake Early Warning System | Python, MLP

- Collaboration with the **Civil and Environmental Engineering of the Duke University** to establish an earthquake early warning system in the Kathmandu Valley
- Employed **Multilayer Perceptron** algorithm to predict the earthquake's S-wave parameters during early warning.
- Presented a poster at the Geo-Hazard Symposium, held in Kathmandu, Nepal

Activities

President | Kathmandu Valley Leo Club

June 2022-June 2023

- Led 130+ students in organizing transformative programs:
- Spearheaded a **national ideathon** on 'Sustainable Solutions' supported by the **National Academy of Science & Technology (NAST)** and the **University of Adelaide**.
- Donated **1000+ books** to benefit **400+** students at Shree Gitawar Lower Secondary School and provided **60+** kg of warm clothes to **1000+** people of the **indigenous Chepang community** in Raksirang Village, Makwanpur, Nepal
- Implemented an anti-rabies vaccination and spay/neuter campaign for campus dogs, organized blood donation drives, research innovation talks, and cultural exchange programs

Head of Literary Department | IOE Spotlight Club

May 2021- June 2022

- As the first Literary Department Coordinator, initiated and sustained the publication of **The Spotlight Weekly**, a newsletter serving **2500+** engineering students with campus news and a platform for expression.
- Led a collaborative team of **15+** editors in receiving, screening, editing, and formatting content for publication.
- Organized monthly poetry and book review sessions, and enhancing literary engagement among students.