

Smriti Shrestha

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EDUCATION

Ph.D. in Geography

Expected: May 2030

University of Florida (UF) | Gainesville, Florida

Master of Science in Geography

July 2026

Oklahoma State University (OSU) | Stillwater, Oklahoma

GPA: 4.0

Bachelor of Science in Environmental Sciences

May 2023

Kathmandu University (KU) | Dhulikhel, Nepal

GPA: 3.91

RESEARCH INTERESTS

- Satellite time-series analysis, machine learning, and geospatial modeling to analyze land use/land cover change, water dynamics, and climate-driven landscape processes across spatial and temporal scales.
- Remote sensing and spatial analysis to examine climate–land–water interactions across natural and managed landscapes.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant

August 2024 – July 2026

Oklahoma State University | Stillwater, Oklahoma

- Design the analytical framework for the project, “Optimizing Invasive Plant Management: Integrating Remote Sensing and Climate Sciences,” supporting research development and methodology refinement.
- Conduct geospatial analysis in ArcGIS Pro and python (ArcPy), compiling and modeling invasion risk with species occurrence data.
- Utilize statistical and machine learning approaches to evaluate environmental predictors of species invasion using python programming language.
- Contribute to project reporting, presentations, and manuscripts, with ongoing feedback.

Teaching Assistant

August 2023 – July 2024

Kathmandu University | Dhulikhel, Nepal

- Instructed undergraduate students in GIS and Environmental Modeling Labs, teaching GIS and Python for spatial analysis.
- Assisted undergraduate labs in Environmental Engineering and Science, including wastewater, soil, and air pollution practical, receiving positive student evaluations.
- Graded assignments and exams with a focus on fairness and accuracy.

Environmental Assistant

February 2023 – July 2023

Nepal Electricity Authority | Kathmandu, Nepal

- Drafted Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) reports, leveraging strong written communication and analytical skills to support energy projects and rural development.
- Developed topographic, land use, and administrative unit maps utilizing ArcGIS Pro and QGIS to create visualizations for transmission line placement.
- Conducted site assessments for transmission projects, integrating field data and community input into planning.

PUBLICATIONS

Shrestha, S., Y. Zhou, S. Brasher, and H. Gholizadeh. Climate and water-proximity variables drive *Lespedeza cuneata* invasion in the U. S. Southern Great Plains. (*In preparation*)

Md Islam S., H. Gholizadeh, N. A. M. Rakotoarivony, R. G. Hamilton, S. Fuhlendorf, Y. Zhou, and **S. Shrestha**. A phenology-guided approach for detecting grassland invasive species using satellite image time series. *Remote Sensing Applications: Society and Environment* 41(2026).
<https://doi.org/10.1016/j.rsase.2026.101945>.

Pradhananga, D., B. Dhungana, A. Byanju, A. Maharjan, and **S. Shrestha**. 2025. Linking science communication with communities about nature-based solutions: A case study of floating treatment wetland systems. *Voice of Himalaya* 12 (1): 38-44.

Shrestha, S., G. Maskey, and R. B. Kayastha. 2023. Assessment of climate change effects on the hydrological regime of Bagmati river basin using SWAT model. *Journal of Hydrology and Meteorology* 11 (1): 28–41. <https://doi.org/10.3126/jhm.v11i1.59663>.

ACADEMIC PRESENTATIONS

***: Presenting author**

Shrestha S.*, Y. Zhou, S. Brasher, M. S. Islam, H. Gholizadeh. 2025. Environmental Controls on *Lespedeza cuneata* Invasion in the U.S. Southern Great Plains: A Multi-Model Approach. American Geophysical Union (AGU) Fall Meeting. December.

Md Islam S.*, N. A. M. Rakotoarivony, R. G. Hamilton, Y. Zhou, **S. Shrestha**, and H. Gholizadeh. 2025. A Phenology-guided Approach for Mapping Grassland Invasive Species Using Satellite Image Time Series. American Geophysical Union (AGU) Fall Meeting. December.

Shrestha S.*, Y. Zhou, H. Gholizadeh, S. Brasher. 2025. Integrating GIS and Predictive Modeling to Identify Environmental Drivers of *Lespedeza cuneata* Invasion in the U.S. Southern Great Plains. GIS Day at University of Oklahoma (OU). November.

Md Islam S.*, N. A. M. Rakotoarivony, R. G. Hamilton, S. D. Fuhlendorf, L. Chai, **S. Shrestha**, S. Brasher, Y. Zhou and H. Gholizadeh. 2025. Developing a scalable approach for mapping invasive plants using remote sensing. Ecological Society of America (ESA) Annual Meeting. August.

Shrestha S.*, G. Maskey, and R. B. Kayastha. 2023. Assessment of climate change effects on the hydrological regime of Bagmati River basin using SWAT model. Poster presentation at the GEOMountains Hindu Kush Himalaya Workshop, ICIMOD, Lalitpur, November.

HONORS, AWARDS, AND SCHOLARSHIPS

Delores and Jerry Etter Graduate Research Scholarship (\$10,000)	2025
Jerry Croft and Family Award in Geography Education (\$1900)	2025
Mark and Susan Miller Fellowship Award in Geography (\$1000)	2025
Robert E. Norris Conference Travel Award (\$1000)	2025
GPSGA Fall 2025 Conference Travel Assistance (\$250)	2025
Enertech Excellence in Graduate Poster Award: Second Place (\$100)	2025
Gamma Theta Upsilon International Geographical Honor Society (Chapter Secretary)	2025
Nepal Student Medal 'A' (Awarded by government for being the school topper)	2023
KU Merit Scholarship (Awarded every semester as the class topper: \$3000)	2018–2023

TECHNICAL SKILLS

GIS Software: ArcGIS Pro, ArcGIS Online, ArcGIS Survey123, QGIS

Remote Sensing: ENVI, Google Earth Engine (GEE)

Geospatial Analysis: Hydrological Modeling (SWAT, TOPMODEL), Model Builder, ArcPy, Proximity Analysis, Overlay Analysis, Network Analysis, Data Engineering, Correlation and Regression

Programming: Python, R, C

Data Analysis: Statistical (Correlation, Regression, Principal Component Analysis, Clustering), Machine Learning (Random Forest, Boosted Regression Trees, Support Vector Machine)

Tools & Platforms: Jupyter Notebook, VS Code, Spyder, RStudio, Adobe Illustrator, SPSS

Languages: Nepali (native), English (proficient), Hindi (intermediate)

ACADEMIC PROJECTS

Analyzing the Role of Driver Behavior and Environmental Conditions in Predicting Traffic Crash Severity in Illinois: A Spatial and Machine Learning Approach

GIS Programming | Oklahoma State University | Stillwater, Oklahoma December 2025
Instructor: Dr. Tao Hu

Estimation of Linkage between Phenology and Climate Using Remote Sensing

Remote Sensing | Oklahoma State University | Stillwater, Oklahoma December 2024
Instructor: Dr. Hamed Gholizadeh

Selection of Plant Species Based on Drought Factors

Bioengineering | Kathmandu University | Nepal June 2021
Instructor: Dr. Bikash Adhikari

ORGANIZATIONS

Member , American Geophysical Union (AGU)	2025
Member , IUCN Climate Crisis Commission	2024/25
Executive Member , Nepalese Student Association at OSU	2024/25
Country Ambassador (Nepal), Eco-Network, Bangladesh	2022/23
Vice President , Inner Wheel Club of Kirtipur Millenials	2022/23
International Service Organizer , Inner Wheel Club of Kirtipur Millenials	2021/22

VOLUNTEERING

GIS Day 2025 at OSU (Undergraduate Poster Judge)	October 2025
Lead Week at OSU	September 2025
GIS Day at the Capitol	March 2025
US Study Abroad Student Engagement Program	August 2022
Hult Prize at Kathmandu University	March 2022
Nepalese Youth for Climate Action	2021/22
Nature and Social Concern Society (NSCS) day	August 2020
Himalayan Knowledge Conclave (HKC)	August 2020
Sustainability Discourse	June 2020

RELEVANT COURSEWORK AND TRAININGS

Spatial Data Science: The New Frontier in Analytics (Esri)	2025
Python Scripting for Geoprocessing Workflows (Esri)	2025
ArcGIS Survey123 Basics (Esri)	2025
Lead4Success Leadership Training (Hargis Leadership Institute at OSU)	2025
Introduction to Zotero (OSU Library)	2024
GEOMountains: Interdisciplinary Monitoring, Data & Capacity Sharing (ICIMOD)	2023
Empowering Women in Geospatial Information Technology (ICIMOD)	2023
Data Analysis with Python (IBM)	2023
Applications of Satellite Generated Atmospheric & Climatic Datasets (PLUS)	2023
Data Analysis with R Programming (Google)	2023
Envisioning Spatial Analysis through SuperMap GIS (SuperMap)	2021
Introduction to GIS Mapping (University of Toronto)	2021
Getting started with GIS (ESRI)	2021
Ecology: Ecosystem Dynamics & Conservation (AMNH)	2021