PRABISHA SHRESTHA

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Summary

Recent Ph.D. graduate in Geography & Environment from University of North Carolina at Chapel Hill with over 8 years of experience in data-driven research and geospatial & statistical analysis for environmental and sustainability projects. Skilled in ArcGIS, R and Python, with a strong foundation in integrating diverse datasets including lidar, satellite imagery, orthoimagery and survey data to uncover actionable insights.

Education

Ph.D. in Geography & Environment, Dec 2024
University of North Carolina at Chapel Hill, NC

M.Sc. in Forestry (Hydrology and Soil Science), Dec 2016
Southern Illinois University Carbondale, IL

B.Sc. in Environmental Science (major), Public Health (minor), May 2013
Asian University for Women, Chittagong, Bangladesh

Professional Experience

Graduate Research Assistant (Aug 2019 - Dec 2024)
Remote Sensing & Ecological Modeling Group, Dept. of Geog. & Env., UNC-Chapel Hill, NC

- Demonstrated slow adoption of clean cooking fuels in rural Nepal linked to community forest dependence and tree cover loss by integrating Hansen Global Forest Change raster data with survey data from 5000+ households across 400 communities. Findings under preparation for publication.
- Led fieldwork across 3 districts in rural Malawi collecting data from 900 ultra-poor households typically excluded from energy interventions. Confirmed negative health impacts of biomass fuel use on primary cooks through longitudinal data. Findings are under preparation for publication.
- Collaborated with EPPSA fellows and mentors in research on energy access and household energy transition in Sub-Saharan African countries (Kenya, Rwanda, Zambia, Zimbabwe).

Data Research Assistant (July 2020 - Sep 2024)
Abacus Evaluation, Data Science & Analytics Team, UNC-Chapel Hill, NC

- Led the spatial analysis of COVID-19 testing data for 100+ NIH RADx-UP projects, delivering actionable insights to support consulting efforts on outreach and community engagement through data briefs and presentations for NIH Principal Investigators.
- Built a data pipeline integrating RADx-UP project survey data with public health indices to enhance COVID-19 testing outreach, oversaw survey management on REDCap for project evaluation and delivered insights through dashboards and interactive visualizations.
- Co-authored 3 internal project evaluation reports and 1 manuscript and contributed to creating 1 comprehensive data profile of RADx-UP projects.

Range and Training Land Assessment (RTLA) Coordinator (Jan 2018 - June 2019)
Colorado State University- ITAM Fort Leonard Wood, MO

- Collected field data and mapped vegetation, soil, and water impacts across 30+ sites to identify priority areas for environmental mitigation in military training lands.
- Managed a geodatabase to ensure spatial data accuracy and quality control for Land Rehabilitation and Maintenance (LRAM) projects across multiple military training sites.
- Developed standardized reporting frameworks for training sites delivering actionable insights to senior military leadership, which was later adopted as a reporting standard for all RTLAs across U.S. military installations.

Geospatial Assistant I (Jan 2017 - Dec 2017)
Geospatial Applications & Small Farms Diversification Program, Kentucky State University, KY

- Led research design & field work to evaluate potential use reclaimed mine sites for agriculture in Eastern Kentucky by examining trends of land cover change and forest fragmentation.
- Conducted lidar based spatial analysis to estimate vegetation height and evaluate reclamation success in mine sites across 7 counties in Eastern Kentucky.
- Designed a mapbook to demonstrate land cover change over time (1992-2011) for 53 counties in Kentucky as a visual tool to support teaching and tracking environmental trends.

Teaching: Taught 1 introductory and 1 advanced GIS labs to graduate and undergraduate students.
Mentor: Mentored 2 high school students to use drone and GIS tools for agricultural resource management.

Graduate Research Assistant (Aug 2014 - Dec 2016)
Department of Forestry, Southern Illinois University Carbondale, IL

- Applied machine learning and terrain modeling with orthoimagery and LiDAR data to map erosion paths in 380+ croplands, revealing extensive drainage (~70% on average) and implications for water quality from agricultural runoff.
- Automated workflows using ArcGIS ModelBuilder and ArcPy to map erosion paths, estimate their lengths and drainage areas, and delineate watershed boundaries efficiently.
- Designed and applied implemented linear regression and CART algorithms to identify key predictors of erosion path characteristics, highlighting slope and soil properties as critical factors. Findings were published in a peer-reviewed manuscript.
- Analyzed water quality trends in the Kaskaskia River watershed (2005–2014), identifying nutrient and sediment pollution issues. Visualized findings and co-authored a report recommending best management practices to improve watershed health for Heartlands Conservancy, Inc.

Research Projects

Predictive Analytics (Class project)

- Modeled optimal public library locations using Location Allocation tools to serve as mobile infusion lab sites and increase coverage for healthcare delivery for patients with Inflammatory Bowel Disease in underserved areas in North Carolina (Course GEOG 541).
- Applied Bayesian modeling and kriging to predict ozone concentration distribution and assess mortality risks from chronic respiratory disease across California (Course ENVR 765).

Interactive Web map (Volunteer work)

- Built an interactive web map using R Shinyapps to visualize network of professional diaspora communities from pilot survey data, as part of volunteer work with The Great Nepali Diaspora, a non-profit organization.
- Designed an interactive web map using ArcGIS Online to analyze the spatial distribution of fatal and non-fatal overdose incidents across 10 EMS districts in Nash county, North Carolina to support informed resource allocation, as part of volunteer work with UNC Health Nash.

Training and Workshops

Workshop facilitation: Delivered an online workshop on diaspora mapping survey processes, demonstrating data collection methodologies, data management strategies and automated data preparation pipeline using Python and Airtable (February 2024).

Technical training: Led hands-on training sessions, teaching “Introduction to GIS” to 15 middle school and “Introduction to Remote Sensing” To 25 high school students (June 2017, KYSU).

Community engagement: Organized and facilitated a workshop for 30 local farmers in rural Kentucky, leading discussions on diversifying reclaimed mine land use (May 2017, Prestonsburg, KY).

Internship

Stanford University (June - Aug, 2012)

- Summer internship at Herrin Lab, Department of Biology (Supported lab work on examining temporal and spatial variation in micro fungi on hummingbirds and nectarivorous bats in Costa Rica).
- Summer internship at Jasper Ridge Biological Preserve (Supported field work and data analysis on Jasper Ridge Global Change Experiment).

Technical Skills

Skill Category	Tools/Technologies	Proficiency Level	Experience
GIS Software	ArcGIS Pro, ArcGIS Online, QGIS	Advanced	8+ years
Remote Sensing	ENVI, LAStools, Pix4D, Drone2Map	Beginner to Intermediate	3+ years
Programming	Python (Geospatial libraries), R, GEE	Intermediate to Advanced	4+ years
Automation	ArcPy, ModelBuilder	Intermediate	5+ years
Database Management	SQL, PostGIS	Intermediate	3+ years
Mapping &	ArcGIS Online, Leaflet, Power BI	Intermediate to Advanced	4+ years
Project management	Asana, AirTable, ClickUp, Trello	Intermediate	3+ years
Survey management	REDCap, Qualtrics, OpenDataKit (ODK)	Beginner to Intermediate	3+ years

Technical courses and Certifications

Graduate Certificate in Business Intelligence, Dec 2019
Colorado State University

- Applied Data mining and Analytics in Business
- Application Software Infrastructure
- Business Intelligence
- Business Database Systems

MOOC courses and Certifications

- Building Data Apps with R and Shiny: *LinkedIn*
- Learning Git and GitHub: *LinkedIn*
- Statistics Fundamentals with R: *DataCamp*
- Detecting Objects with Deep Learning: *ESRI*
- Remote Sensing for Conservation and Biodiversity: *NASA*
- Creating Python Scripts for Raster Analysis: *ESRI*
- Inspect Assets Using Drone2Maps for ArcGIS: *ESRI*
- Python Scripting for Geoprocessing Workflows: *ESRI*
- Python Scripting for Map Automation: *ESRI*

VOLUNTEER WORK

- Diaspora mapping team, The Great Nepali Diaspora (2022 - Present)
- Mapping opioid overdose, UNC Health Nash (2023 - 2024)
- Data Validation Volunteer- South Asian entities, NetZeroTracker (2023)

AWARDS

- EPPSA Graduate Energy Fellowship, UNC-Chapel Hill (2021)
- Institute for the Arts and Humanities Award, UNC-Chapel Hill (2020)
- Professor James Ingram Memorial Summer Research Fellowship, UNC-Chapel Hill (2020)
- Mingma Norbu Sherpa Community Engagement Fellowship, UNC-Chapel Hill (2020)