

Santosh Rijal, Ph.D.

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Current Teaching Position

Visiting Assistant Professor of GIScience
Department of Geography
Virginia Tech

Teaching Expertise and Interest

- Introductory/Advanced Geographic Information System (GIS)
- Introductory/Advanced Remote Sensing
- Spatial Analysis
- Cartography and Visualization
- Environmental Science and Policy
- Physical Geography

Research Expertise and Interest

- Application of geographic information science (GIScience) in multiple disciplines such as land condition assessment, agriculture, forestry, hydrology, natural resources management etc
- Modeling and Prediction of land condition
- Spatial analysis
- Ecosystem Services

Education

Southern Illinois University Carbondale (SIUC) - May 2017
Ph.D. in Environmental Resources and Policy (GPA- 3.83)
Dissertation Title: Monitoring and Assessment of Military Installation Land Condition under Training Disturbance using Remote Sensing
Advisor: Dr. Guangxing Wang

University of North Dakota (UND) –May 2011
MS in Earth System Science and Policy (GPA- 4.00)

Thesis Title: Developing a remote sensing algorithm for deriving soil moisture from spectral reflectance

Advisor: Dr. Xiaodong Zhang

Tribhuvan University (TU) – Institute of Forestry, Pokhara (IOF) – August 2007

BS in Forestry

Project Title: Landslide hazard zonation mapping of Tilpung Khola sub-watershed using GIS

Advisor: Dr. Keshav D Awasthi

Courses Taught

GEOG 5084: Advanced Modeling with GIS (**Virginia Tech**): Instructor

GEOG 4084: Modeling with GIS (**Virginia Tech**): Instructor

GEOG 2084: Principles of GIS (**Virginia Tech**): Instructor

GEOG 5064: Elements of GIS (**Virginia Tech**): Instructor

GEOG 4354: Introduction to Remote Sensing (**Virginia Tech**): Instructor

GEOS 5354: Advanced Remote Sensing (**Virginia Tech**): Instructor

GEOG 406/506: Introduction to Remote Sensing: (**SIUC**) Instructor

GEOG 416/516: Cartography and Visualization (**SIUC**): Instructor

GEOG 401 (Introduction to GIS), GEOG 406 (Introduction to Remote Sensing),

GEOG 404 (Spatial Analysis), GEOG 408 (Advanced Remote Sensing),

GEOG 416 (Cartography and Visualization) (**SIUC**): Lab Instructor

Professional Experience

- **Visiting Assistant Professor, Department of Geography, Virginia Tech (Current Position)**

Teaching responsibilities include Principles of GIS, Elements of GIS, Modeling with GIS, Advanced Modeling with GIS, Introduction and Advanced Remote Sensing

- **Research Assistant**

Worked in a military project as a research assistant. Primary responsibilities include analyzing multi-source and multi-scale data, data fusion, mapping and real-time dynamic monitoring land condition vulnerability, and assessing quality of data and map products.

- **Graduate Research Assistant (Aug 2011-May 2015)**

Worked as a graduate research assistant to develop remote sensing based indicators to monitor and assess land condition in Fort Riley Military Installation.

- **Internship at Johnson County Illinois 911 (June 2013-Aug 2013)**

Worked for Johnson County 911, Illinois, as a paid summer internship. Primary job responsibilities include collection and editing of GIS data, development of geodatabases, and preparation of several maps such as fire district maps for emergency management

- **Carbon auditing Committee Member (Aug 2008-Aug 2009)**

Worked as a member of 1st carbon auditing committee of the University of North Dakota (UND) for estimating carbon emission of UND

- **Graduate Research Assistant (Aug 2008-May 2011)**

Worked as a graduate research assistant in the geospatial laboratory of the Department of Earth System Science and Policy, University of North Dakota. Worked in collaboration with several research organizations such as Upper Midwest Aerospace Consortium (UMAC), Center for People and the Environment (CP&E), and Digital Northern Great Plains (DNGP), where several remote sensing imageries (e.g. Landsat, Aster, LiDAR, MODIS, AEROCam) are processed to develop products, services, and information for agriculture and natural resource management.

Peer-reviewed Journal Articles

- **Rijal, S.,** G. Wang, P.B. Woodford, Q. Wang. 2018. (In Review) Differentiation of the common plant species of the tallgrass prairie ecosystem using in-situ hyperspectral observation.
- **Rijal, S.,** G. Wang, P.B. Woodford, H.R. Howard, J.M.S. Hutchinson, S. Hutchinson, J. Schoof, T.J. Oyana, R. Li. 2018. Detection of gullies in Fort Riley military installation using LiDAR generated high resolution DEM. *Journal of Terramechanics*, 77, 15-22.
- **Rijal, S.,** G. Wang, P.B. Woodford, H.R. Howard, J. Schoof, T.J. Oyana, L.O. Park, R. Li. 2017. Comparison of military and non-military land condition using an imaged derived soil erosion cover factor. *Journal of Soil and Water Conservation*, 72(5), 425-437.
- Wang, G., D. Murphy, A. Oller, H.R. Howard, A.B. Anderson, **S. Rijal**, N.R. Myers, P.B. Woodford. 2014. Spatial and temporal assessment of cumulative disturbance impacts due to military training, burning, haying, and their interactions on land condition of Fort Riley. *Environmental Management*, 54(1), 51-66.
- **Rijal, S.,** X. Zhang, X. Jia. 2013. Estimating Surface Soil Water Content in the Red River Valley of the North using Landsat 5 TM Data. *Soil Science Society of America Journal (SSSAJ)*, 77(4), 1133-1143. doi:10.2136/sssaj2012.0295.
- McElroy, A.K., S. O'Neil, **S. Rijal**, N. Thapa, J. Yang J. 2009. Greenhouse Gas Emission Inventory at the University of North Dakota. *Catalyst*, 1, 51-60

Reviewer of Journals

- Remote Sensing – Open Access Journal from MDPI
- International Journal of Applied Geospatial Research
- Hydrology – Open Access Journal from MDPI
- Water – Open Access Journal from MDPI

Conference Presentations

- **Session Chair:** American Association of Geographers (AAG) Annual Meeting, New Orleans (April 10-14, 2018): In-situ hyperspectral observation of some dominant grass, forb, and shrub species of the tallgrass prairie ecosystem
- American Association of Geographers (AAG) Annual Meeting, Chicago (April 21-25, 2015): Mapping gullies in a military disturbed land using LiDAR data

- Illinois GIS Association (ILGISA) Regional Meeting, Carbondale (Feb 19, 2015): Mapping burned areas using image-derived cover factor in Fort Riley Military Installation
- American Society of Photogrammetry and Remote Sensing (ASPRS) Annual Conference, Louisville (March 23-28, 2014): Developing image derived indices for quantifying land condition recovery in a military disturbed land-Fort Riley Installation, Kansas
- Soil Science Society of America International Annual Meeting, Tampa (Nov 3-6, 2013): Assessment of military induced impacts on land condition recovery of Fort Riley Installation by comparison with Konza Prairie ecosystem
- ASPRS Specialty Conference, Tampa (Oct 29-Nov1, 2012): Assessment of Fort Riley's land condition recovery under multiple disturbances due to military training, burning and haying
- American Association of Geographers (AAG) West Lakes Division Annual Meeting, Chicago (November 10-12, 2011): Estimating surface soil moisture in the Red River Valley of the North using Landsat 5TM data
- Art, science and application of reflectance spectroscopy, an international scientific symposium (Feb 23-25, 2010), Boulder: Effect of soil moisture on reflectance: an artifact observed in the continuous operation of ASD
- Biodiversity in a rapidly changing world, Washington (Dec 8-10, 2008): Biodiversity in the Northern Great Plains: assessing the impacts and trade-offs between multiple resource uses.

Technical Skills

Google Earth Engine, ArcGIS, ERDAS IMAGINE, ENVI, SPSS, MATLAB, R, Analytical Spectral Devices (ASD) FieldSpec, IDRISI, MCAS, Cartalinx, Whitebox GAT, VBA, Python, C, C++

Grants and Awards

- Sustainability travel award: Received sustainability travel award from the Sustainability Council at Southern Illinois University Carbondale to attend the ASA, CSSA, and SSSA Annual meetings, Tampa (Nov 3-6, 2013)
- Research grant of \$200 from ConForM/Danida Fellowship program for landslide hazard zonation mapping of Tilpung Khola Sub watershed using GIS
- Outstanding student award in Forest Management, Institute of Forestry, Pokhara from Nepal Foresters Association (NFA), Nepal

Leadership

Education Advisory Committee Member, Illinois GIS Association	[Jan 2014-Current]
President, GIS Club (A registered student organization at SIUC)	[Jul 2012-Jul 2014]
President, Nepalese Students Society Carbondale	[Sep 2015-Sep 2016]
Secretary, Self Help Environment Awareness Camp (SHEAC)	[Jul 2005- Jul 2006]

Professional Society Memberships

American Society of Photogrammetry and Remote Sensing (ASPRS)
Soil Science Society of America (SSSA)
American Association of Geographers (AAG)
Illinois GIS Association (ILGISA)