

Priyanka Gupta
PhD (Pursuing) IIT Mandi, India
GATE (Geomatics Engg.) AIR 214
UGC-NET (Computer Science & Applications)

☎ +91-7982038490, +91-9999876412
✉ d20062@students.iitmandi.ac.in
✉ pgpriyankagupta15@gmail.com

Skills

Platforms: Google Colab, Google Earth Engine, Jupyter Notebook

Software: ArcGIS Pro, ArcGIS, QGIS, ENVI, Matlab

Programming Languages: Python, JavaScript, R

Python Libraries: Scikit Learn, Gdal, Geopandas, PyProj, GeeMap, Numpy, Pandas, Matplotlib, Folium, Seaborn, Geoplotlib, Pygal

Datasets: Sentinel 1,2, 5P, Landsat 4,5,6,7,8 & 9, MODIS, ASTER

Earth System Science: Forest Fire analysis; LULC Mapping, Vegetation Mapping.

GIS: Raster modelling, Spatial analysis - Interpolation, Buffer, Overlay.

Image Processing: image correction & rectification; classification; change detection; feature extraction, OBIA

Data Analysis: Geostatistics; multivariate regression; interpolation; kriging; cluster analysis; timeseries

Data Visualization: 2D/3D/higher-D plots, images, animation

Data Management: validation; processing/automation.

ML Algorithms: CART, RF, SVM, Minimum Distance, K-nearest neighbor (KNN), Gaussian Process, DT

Awards

- **GATE in Geomatics Engineering 2023, AIR-214**
- Received Travel Grant to present my work at **IEEE, MIGARSS-2023**, Hyderabad, India
- Received Travel Grant to present my work at NERC Conclave, IIT Guwahati 2022.
- Received Travel Grant to present my work at **ISPRS-2022, Nice, France**, June 2022
- **University Grants Commission, National Eligibility Test (UGC - NET) in Computer Science & Applications** June & Dec 2019
- **Central Teachers Eligibility Test (CTET)2019** qualified
- M.Sc. Tech. Scholarship for scoring the highest marks.
- B.Sc, second rank holder in the college

Education

Indian Institute of Technology, Mandi
Senior Research Fellow – Feb '23 - Present

Indian Institute of Technology, Mandi
PhD - Geo-spatial Data Analysis
Junior Research Fellow Feb' 21- Feb '23
PhD Coursework 8.25 CGPA

Regional Institute of Education, Ajmer
B.Ed. (Bachelor's in education)
2018-2020, 76 %

Central University of Rajasthan
M.Sc. Tech Mathematics & Computer Science 2009-2012, 7.99 CGPA

MDS University, Ajmer, Rajasthan
B.Sc. Computer Applications and Mathematics
2006-2009, 76 %

Research Experience:

1. P. Gupta & DP Shukla, "Google Earth Engine based Temporal analysis of indices used for forest fire study in Mizoram, India", **The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences**.

- Data Preprocessing (Cloud Masking, Filtering, Mosaicking etc.)
- Spatial and Temporal Analysis of Indices (NDVI, NDMI, NBR, AFRI etc.), LST for forest fire study in North-Eastern Himalayan Region.
- Descriptive Statistical Analysis.

2. Gupta, Priyanka, Arun Kumar Shukla, Dericks P. Shukla, Iphita Priyadarsini Pradhan, Ankit Singh, and Kirti Kumar Mahanta. **"Local warming increased to 3° C due to forest fires in various parts of the world between 2019 and 2021." In Fall Meeting 2022. AGU, 2022.**

- Use of FIRMS NASA data points for identifying high heat zones in ArcMap in various parts of the world due to Wildfires, then analyzing the Land surface temperature changes using GEE in those regions.

3. Gupta, Priyanka, Arun Kumar Shukla and Dericks P. Shukla. **"Rising Temperature of Ukraine due to Russia-Ukraine War 2022." In Fall Meeting 2022. AGU, 2022.**

4. Gupta, Priyanka, and Dericks Shukla. *Combined Optical and SAR Remote Sensing for LULC Mapping of Imphal Valley Using Machine Learning Algorithm.*

- Use combined Optical and SAR data for LULC Mapping using ML-RF Algorithm in GEE, Overall Accuracy, and Kappa coefficient.
- Speckle filtering for noise reduction.
- Mapping of Paddy crops, Horticulture farm, Phumdis, Waterbody etc.

5. Demi Decadal Land Use Land Cover Mapping after topographic correction (Under review)

- Land Use Land Cover Change Analysis
- Topographic correction for Indian Himalayan Region using GEE for LULC Mapping
- Classification based on ML Algorithms (RF, SVM, Minimum Distance, CART)
- Principal component analysis for dimensionality reduction
- Time Series Analysis

6. Forest Fire Burnt Area Mapping Using Sentinel 2 Satellite Imagery in North-Eastern Himalayan Region (Under review)

- Calculate NBR, dNBR, RBR, and RdNBR Indices with Sentinel 2 Satellite Imagery.

7. Forest Fire Mapping (Under Submission Process):

- Forest Fire Susceptibility Mapping using ML Algorithms, Prediction of high forest fire probable zone based on multiple factors, and Risk Assessment.
- Forest Fire Burnt Area Mapping and vegetation loss analysis using NDVI.
- Multivariate Analysis using various statistical methods like VIF.

Teaching Experience

- Working as a **Teaching Assistant** for Geoinformatics, Major Technical Project at **IIT Mandi** (Feb 2023- Present, Feb 2022 – June 2022)
- Worked as **Guest Faculty** at **Amity University** Greater Noida (20th Dec 2017 – May 2018)
- **Self Employed, established a coaching institute** named Learners' Hub for students from VI – XII in Greater Noida (April 2015 – March 2018)
- Worked as **Asst Prof. of Mathematics at IEC Engineering College**, Gr. Noida, UP (Feb 2014 – Aug 2014)

Responsibilities

- Google Developer Student Club (GDSC IIT Mandi Chapter) Core Committee member
- Student representative of Syllabus committee at CURAJ (2009-11)
- Nominated member of Student Council at CURAJ (2009-11)

Certifications

ISRO certified online course on "Geo-spatial Applications for Forest Ecosystem Analysis" delivered by Indian Institute of Remote Sensing & - 20/06/2022 to 25/06/22.

ISRO certified online course on "Hyperspectral and Microwave Remote Sensing Techniques for Geo-spatial Studies" organized by Indian Institute of Remote Sensing-07/03/2022 to 17/03/22.

Languages

English: Full professional proficiency

Hindi: Native or bilingual proficiency

References

Dr Dericks P. Shukla
Associate Professor & School Chair
School of Civil Engg., and Environmental Engineering
Indian Institute of Technology, Mandi, India - 175005
Mobile No.:
dericks@iitmandi.ac.in

Dr Niraj KC
Assistant Professor
Department of Geomatics Engineering
Paschimanchal Campus, Tribhuvan University,
Pokhara, Nepal 33700
Mobile No.
nirajkc@gmail.com