Omkar Jadhav

Senior Research Fellow (RS & GIS)

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WORK EXPERIENCE

Senior Research Fellow- Remote Sensing & GIS [December 2023- Present]
Mahatma Phule Agricultural University, Rahuri, Maharashtra (*https://mpkv.ac.in/*)
World Bank Aided National Hydrology Project, Ministry of Jal Shakti, Government of India

- Project: Gradual Development of Irrigation Management System for Continuous Assessment of Performance/ Benchmarking of Pench Irrigation Project, Nagpur

Course Co-Ordinator-RS & GIS (short course) [July 2024- Present]
Mahatma Phule Agricultural University, Rahuri, Maharashtra (*https://mpkv.ac.in/*)

- Coordinating a comprehensive training program focused on Remote Sensing and GIS with Geoinformatics as a specialization. Mentoring students from agriculture background about choosing GIS as future

GIS & MEL Expert [June 2023- September 2023]
Samerth Charitable Trust, Vejalpur, Ahmedabad (*https://www.samerth.org/*)
Association with Commonland foundation (*https://commonland.com/*), Amsterdam, Netherlands

EDUCATION

M.Sc.- Geoinformatics [October 2020- October 2023]
Faculty of ITC, University of Twente (*https://www.itc.nl/*), Enschede, Netherlands
JEP with Indian Institute of Remote Sensing- Indian Space Research Organization (*https://www.iirs.gov.in/*), Dehradun, India

- Thesis: Sugarcane Crop Monitoring Using Multi-Parametric SAR Datasets, Machine Learning Approach
  IIRS-ISRO Supervisor- Dr Dipanwita Haldar (Scientist-SF)
  ITC- UTwente Supervisor- Dr ir Wietske Bijker (Assistant Professor)

B.Tech.- Agricultural Engineering [July 2015- July 2019]
DBSKKV, College of Agricultural Engineering and Technology (*https://www.dbskkv.org/faculty/engineering*), Dapoli, India

- Thesis: Developing an ICT Application for Runoff Estimation Using C++

SKILLS

Programming languages	:	R, Python, JavaScript, SQL
Libraries & Framework	:	scikit-learn, TensorFlow, PyTorch/ keras, OpenCV, ArcPy, GeoPandas, GDAL, rasterio, xarray, folium, shapely, fiona, numpy, pandas, sciPy, matplotlib
GIS Tools/ Software	:	ESRI Products, ArcGIS Pro, ArcGIS Enterprise, ArcMap, ArcGIS Online, Google Earth Engine, QGIS, ERDAS imagine, ENVI
Databases	:	PostgreSQL, PostGIS, MongoDB
Dev. Tools	:	Visual Studio Code, Git, Jupyter Notebook, Docker, GitLab CI/CD
Technical skills	:	Spatial Data Science, Machine Learning, Deep Learning, Data modeling, Spatial Analysis and Quality Checking, Digital Image Processing and Image Analysis,

		Mathematics, Statistical analysis, Algorithms, Computer vision, Quantitative analysis, Microsoft office, Predictive modeling
Soft skills	:	Problem solving, Responsible, Time Management, Communication and Collaboration, Research and Development, Technical writing (creating adhoc report, proposals for project under Department of Science and Technology, Government of India), Attention to detail, Networking, Ability to work with team, Goal oriented, Clear thinking and Straightforward

INTERNSHIPS

Research Intern [January 2019- May 2019]
Albedo Foundation- RS & GIS Training Institute, Nashik, India

Research Intern [June 2017 -1 month]
Indian Institute of Soil and Water Conservation, Bellary, India

RESEARCH WORKED ON

- **Semantic Segmentation with U-Net:** Developing semantic segmentation model using U-Net architecture to segment objects in images *(Deep learning, U-Net, TensorFlow/Keras, Python, Semantic segmentation)*
- **Satellite Image Segmentation:** Perform segmentation on satellite images to identify different land cover types, such as water bodies, vegetation, and urban areas *(Remote Sensing, GIS, deep learning, Python, satellite image processing)*
- **Crop Disease Identification Using YOLOv5:** Implementing YOLOv5 architecture to identify and classify disease in crop images *(Annotation, Deep learning, YOLOv5, Disease detection)*
- **Monitoring Crop Using Satellite Imagery and ML:** Performing a comparative analysis using Random Forest and Support Vector Classifier algorithm, enhancing the understanding of planted and ratoon sugarcane
- **Predicting Farm Level Crop Yield and Biophysical Parameters Using SAR and ML Approach:** Building a machine learning model for estimation of biophysical parameters of sugarcane for both planted and ratoon sugarcane
- **Object Detection with YOLOv5:** Implementing the YOLOv5 (You Only Look Once) algorithm to detect and classify the brick kilns *(Deep learning, CNN, YOLOv5)*
- **Impact of Vegetation on Urban Heat Island in Bengaluru:** A case study on UHI effect in Bengaluru and parameters affecting it with calibration of its water bodies cooling effect in outskirts region *(GDAL, rasterio, sklearn)*
- **Assessment of changes in the Sundarbans Mangroves using Earth Observation data with the help of GEE:** Analyzing change in water level and forest cover of Sundarbans and observing effect of increase in mean sea level over 30 years of time span using machine learning models like random-forest and XG- Boost
- **Analyzing Crop Water Stress:** Conducting an in-depth analysis of crop water stress in the Hoshiarpur District of Punjab using Sentinel-1 SAR dataset and Landsat-8 optical imagery
- **Parameterization C-factor of RUSLE Model:** Estimating the Crop Cover (C- factor) of the RUSLE model for soil erosion assessment using Google Earth Engine *(Hydrology, Soil Conservation, Google Earth Engine)*
- **Sentinel Synergy Analysis for LULC Classification:** Performing land cover and land use classification using an object-based technique, leveraging the synergic use of Sentinel-1 and Sentinel-2 satellite data *(object-identification, Digital Image Processing and Analysis)*
- **Dashboard for Real-Time Covid Reporting:** Developing a comprehensive COVID-19 dashboard using PowerBI, enabling real-time reporting and analysis *(API, Excel, PivotTable, PowerBI)*
- **Digital Soil Mapping:** Preparing a digitized soil map utilizing the machine learning method *(Soil Science, Machine learning, Regression technique)*

- **Analyzing Spatial Variation in Rainfall:** Analyzing the spatial variation of monsoon rainfall in Maharashtra using remote sensing TRMM data and QGIS *(netCDF, TRMM, QGIS, Python)*

PUBLICATION

Jadhav, O. A., Gharat, T. V, Pathave, J. C., & Nikam, V. V. (2019). Comparative Analysis of Digital Elevation Models: A Case Study of Kayadhu Watershedle. *Asian Journal For Convergence In Technology (AJCT) ISSN -2350-1146*, *4*(3 SE-Article). Retrieved from https://www.asianssr.org/index.php/ajct/article/view/829

CERTIFICATES

Google Data Analytics professional certificate [May, 2023]
Coursera | Commonwealth of Learning, British Columbia, Canada

Land in Focus: Agriculture and Food [June. 2022]
EO College, European Space Agency

International Conference on Insight in Mechanical and Civil Engineering (ICIMCE) [26th and 27th April, 2019]
DYPIET, Pune