

PRADEEPIKA KAUSHIK

Remote Sensing & Geo-Data Specialist / Web & Business Ops. Developer

PortFolio-Link



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Netherlands

Expert in geospatial data analysis, AI-driven hydrological modeling, and full-stack software development. Transforming hydro-environmental data into actionable insights through advanced visualization tools, interactive dashboards, and scalable cloud-based solutions. Passionate about delivering business value and meeting client needs with innovative, data-driven solutions.

PROFESSIONAL SKILLS:

Project Management |Team Leadership | Communication | Problem-solving | Collaboration | Open to New ideas

TECHNICAL SKILLS:

HTML5 |CSS |Express.js |Python |Node.js |Bootstrap 4 |DOM |API |React |SQL |Postman |POSTGIS| JavaScript|
Geospatial data analysis | Database |Web Framework |UX/UI Scripting

EDUCATION

Geospatial & Data Visualization Scientist (Post-Doc)	Centre for Hydrologic innovation, ASU- Tempe	2024-Present
Doctor of Philosophy (Ph.D.) (DST -Inspire Research Fellow)	Geology/Earth Science, Institute of Science Banaras Hindu University, India	2013-2019
Visiting Researcher	University of Glasgow, Scotland, UK Geological and Earth Sciences/Geosciences	2016 - 2016
Master in Science (M.Sc)	Geological and Earth Sciences/Geosciences Jiwaji University, India	2009 - 2011
Bachelor in Science (B.Sc.(Hons.))	Aligarh Muslim University, India	2006-2009

WORK EXPERIENCE

Geospatial & Visualization Scientist
Postdoctoral Researcher

Arizona State University |
Oct 2024 – Present

Project Colorado River Basin – Dashboard

Overview Developed an advanced hydrological data analysis and visualization dashboard using R Shiny/ Python (Streamlite), enabling researchers and water resource managers to analyze multi-source data efficiently.

Key Contributions

- Core Stack: R Shiny, ShinyDashboard, Plotly (interactive charts), Leaflet (geospatial mapping).
- Data Integration: Consolidated VIC, SMAP, GRACE, and SNOTEL datasets; supported RDS/NetCDF formats.
- Frontend: Responsive ASU-themed UI with dynamic visualizations and time-series tools.
- Backend: Optimized data pipelines, caching, and error handling.
- Architecture: Modular design with UI/server separation and data validation.

Achievements

- ✓ Unified disparate hydrological datasets into a single platform.
- ✓ Delivered real-time interactive visualizations.
- ✓ Enhanced performance via caching and optimized pipelines.
- ✓ Ensured maintainability with Git, documentation, and modular code.

Skills Demonstrated Technical: **R programming, Shiny, geospatial analysis (Leaflet), time-series analytics.**
Soft Skills: **Project documentation, collaboration, problem-solving, UX design.**

Relevance Demonstrates expertise in data science, full-stack R development, and environmental informatics for roles in water resources, climate research, and SaaS solutions.

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- **As Software developer-** Spearheaded the development of React applications and RESTful APIs, showcasing adeptness in modern web development technologies.
- Designed and curated diverse portfolios and JavaScript assignments, demonstrating creativity and proficiency in front-end development.
- Engineered one-page applications, emphasizing simplicity and user-centric design principles for enhanced user experience.
- Established and maintained servers, ensuring smooth functioning and optimal performance of backend systems.
- Implemented WebSocket and Socket.io for real-time communication between servers and frontend users, enhancing interactivity and responsiveness.
- Utilized Node.js to create APIs, enabling seamless data exchange and integration across various components.
- Leveraged Postman for efficient database management, streamlining data manipulation and validation processes.

GIS Specialist - Freelancer

2020-2022

- Developed tools and procedures for automation, streamlining operations, and boosting productivity.
- Utilized geospatial, and temporal data with different GIS software and created web app using 123 survey data and client data to plan and execute Public Works and Utilities projects.
- Designed and maintained geospatial databases, optimizing data management processes.
- Identified and implemented GIS applications to enhance operational efficiency and integrate location-based information.
- Created custom datasets and maps tailored to business needs, utilizing diverse data sources.
- Managed online maps and applications, providing training to business partners for effective usage.

Visiting Research Fellow

*Glasgow University, Scotland, UK
2016*

- Engaged in dynamic group sessions and seminars, driving forward research initiatives focused on river morphology and channel patterns.
- Captured the spotlight by delivering a compelling seminar at a prestigious joint meeting between the University of Glasgow and the University of Edinburgh, showcasing expertise and innovation.
- Harnessing the power of ArcGIS 10.5 and ERDAS software, meticulously crafted .Kml files to unveil the captivating evolution of the Chambal basin.
- Engineered the blueprint for river-style framework network evolution, laying the groundwork for a deeper understanding of geomorphological and structural dynamics.
- Elevated landscape analysis to new heights by integrating Landsat imagery ETM+ and SRTM DEM data, offering unparalleled insights into landscape evolution.
- Ensured data integrity through rigorous validation studies on temperature and humidity-controlled areas, leveraging shapefiles to enhance precision.
- Pioneered the development and management of geospatial/remote sensing geodatabases, fostering accessibility and accuracy across diverse projects.
- Unleashed creativity and precision through the implementation of ESRI geospatial software, facilitating the digitization, creation, and modification of maps tailored to project needs.
- Led the charge in preparing thematic base map databases, employing cutting-edge remote sensing techniques to empower government projects in India with actionable insights.

Assistant Professor (Remote Sensing & GIS)

Banasthali University, Rajasthan, India

2016 - 2018

- Updated attribute tables and integrated new customer data, ensuring data accuracy and compliance.
- Conducted data collection and reporting, providing clear insights on project progress and time management.
- Supervised bachelor's and master's students in their graduation projects, providing guidance in monitoring and analyzing research areas using remote sensing and GIS.
- Led research programs on river and catchment physical processes as an experienced fluvial

geomorphologist.

- Conducted training classes and developed training documentation for online maps and applications.
- Possessed conceptual and practical knowledge in processing and analyzing geo-information.
- Delivered course lectures and practical sessions on remote sensing & GIS, structural geological mapping, fluvial geomorphology, crystallography, environmental science, and geological engineering.
- Organized national conferences and university programs, contributing as a team player and committee member.
- Mentored students, developing individualized academic action plans in coordination with department heads.
- Strengthened university-industry contacts and facilitated placement cells.
- Managed departmental management and committee work for admission counseling and other academic duties.

DST Inspire PhD Research Fellow (JRF+SRF)

Banaras Hindu University

2013 - 2019

(Awarded in December 2019)

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- Combining SAR and Optical Earth Observation with for Flood Mapping and Impact Assessment and Create, manage, accurate online maps and data with ArcGIS online platform and create, manage, and curate online applications using Collector for ArcGIS Online
 - Manage geodatabase and its contents and work with various departments to develop online maps and apps to meet their needs
 - Update attribute tables to incorporate data needed for regulatory purposes and work towards GIS becoming the permanent system of record of geospatial data
 - Adding new customer data to maps and customer service databases
 - Conflation of GIS data converted from AutoCAD files.
 - Collect data from outside sources including government agencies and other local utilities Use Microsoft Office software suite to perform upkeep of department database
 - Develop weekly/monthly articulate results clearly and concisely in reports for management on the time management
 - Responsible of prepared geodatabase file for geomorphological, geological & structural lineament mapping with excellent analytics parameters in morphometric (Hydrological, Climatological) analysis of Chambal river basin and landscape of central India.
 - Responsible for generating cross-section profile and its analysis by the longitudinal and transverse parameters by using a hydrological model of Arc GIS tools.
 - Prepared reports on mitigating flood condition and geomorphological evolution of Chambal river basin based on SRTM- DEM (90m resolution data) and Landsat data (30m resolution data).

Project Scientist (ISRO -GSI project)

National Geographic Lineament Mapping Project (NGLM)

Remote Sensing Application Centre, India
2012 - 2013

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- As a Project Scientist, led the acquisition of aerial photos and satellite imagery for the National Geomorphic Lineament Mapping (NGLM) project, in collaboration with ISRO and the Geological Survey of India.
 - Conducted comprehensive GIS analyses, facilitating seamless project preparations, spatial issue resolutions, and insightful visualizations.
 - Created sophisticated geodatabase web maps in .xml, .dbx, and Excel formats, integrating rich attribute data for enhanced understanding and interpretation.
 - Undertook extensive field surveys as a Geologist, meticulously collecting geographical coordinate data across various scales for major states in India.
 - Played a pivotal role in analyzing, researching, and implementing mapping tools, ensuring adherence to high standards and templates while maintaining a knowledge base of industry best practices.
 - Demonstrated mastery in GIS tasks, utilizing ArcGIS Desktop/ArcGIS Pro and equivalent platforms for precise analytics, data visualization, and map production.
 - Championed the development of professional geospatial applications, harnessing the power of ESRI and open-source technologies to drive innovation and efficiency.
 - Utilized GIS software to architect plans for Public Works and utility projects, contributing to the development and preparation of impactful infrastructure projects.
 - Led the application of remote sensing/geospatial technologies, driving impactful change detection, monitoring, and resource extraction endeavors with unparalleled precision and foresight.

MEMBERSHIP:

European Geoscience Union | Geological Society of America | European Space Agency |
International Society of Photogrammetry, Remote Sensing | Indian Society of Remote Sensing

ACHIEVEMENTS & AWARD:

1. First Rank Holder Award / Certification	2011
2. Prestigious AORC-DST Inspire Research Fellowship Award	2013
3. TCS- Amsterdam Marathon runner - 8 km	2018 - 2019
4. TCS- Mizuno Halve Marathon - 21 Km runner	2020 - 2024

Teaching Certifications

- Faculty Development Program: Tools and Techniques in Earth Science - India.
- Faculty Development Program: Managing Money for a Happy Family - Bhartiya Insight, India.
- Certificate as Organizing Committee Member for a One-Day Workshop on the Basic Concepts of Field Geology - COSMOS, Geology Department, including training in Polarizing Microscope usage.

Technical Certification

- React – 5 project (Hands-on Practice) | Full-Stack developer – UDEMY | Python – Beginner to Advance
- SQL / MONGO DB / Postgres | Advance SAR training
- 5-day coding challenge from Code Institute, Amsterdam, Netherlands.
- Institute of Indian Geographers (IIG) national conference, India.
- Certificate in organizing committee member of a day workshop on the Basic concept of Field Geology, COSMOS. Polarizing Microscope, Geology department 2017.
- Testimonial in the interpretation of Geological Lineament mapping in Landsat satellite imagery with base Geological Topographic Map using GIS Software from Remote Sensing Application Centre, India.
- Geological Survey of India (GSI) Certificate in Application of Remote Sensing & GIS, ERDAS, ILWIS, QGIS, GRASS, SPRING Software.

Online ESRI Certificates

Master in GIS | PostGIS Certificate | Web course ArcGIS Pro Advance | Basics of JavaScript Web Apps Certificate
Getting Started with ArcGIS Pro Certificate | Getting Started with Data Management Certificate | Python for Everyone

PERSONAL INFORMATION: Nationality- Dutch

LANGUAGES : English – Professional | Dutch - A0-A2 | Hindi – Native | Urdu – Professional |