

Ebrahim Jahanshiri

Geospatial Data Scientist

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[LinkedIn](#), [GitHub](#), [GScholar](#)

Summary

Ebrahim Jahanshiri is a highly experienced practitioner in:

- Geographic Information Systems, Remote Sensing, statistics and AI for geographic data, Mapping, GIS software development
- Predictive statistical modelling, machine learning, deep learning, LLMs for knowledge discovery, MLOps, and Git
- Data management, data lakes and data warehousing, cloud data management, DVC
- Cloud Computing: GCP, AWS

Career highlights:

- 15 years' experience in Geospatial analysis, data science, predictive analytics, data and AI systems
- Pioneered the use of a new big data analysis tools within the agricultural industry, enabling more efficient data processing and uncovering valuable hidden patterns
- Improved revenue by bringing European projects to develop software systems and databases
- Effectively communicated complex data insights to non-technical stakeholders, influencing key business decisions and driving positive outcomes.

Geospatial data scientist

Ebrahim's particular expertise is in design and development of **AI analytics** for spatial data. He has experience in handling **multi-sources geospatial** data and delivering projects that deal with data from GPS to satellite remote sensing and software platforms that take advantage Geospatial programming (ArcGIS, ArcObjects SDK for VBA developer, QGIS, R). He has also extensively worked with modern geospatial data handling systems on cloud such as **Google Earth Engine**.

Data Science and Analytics Lead

Ebrahim's experience covers managing **data science projects**, algorithm development, coding in Python and R, AI modelling, and dashboarding and analytics for wide range of industries. He has developed **Machine learning** (Clustering, Random Forest, Deep Learning, generative Neural Networks, LLMs for knowledge discovery) He has also experience with end-to-end projects, CI/CD, MLOps and Git implemented on Google Cloud and AWS.

Data Specialist

As a Data Manager, Ebrahim's experience is on developing data models, database implementation and delivery. He has **operationalised data warehouses and data lakes** for data acquisition, and mining, curation and front-end developing for data portals. He has worked with SQL (Postgres, MySQL), GCP(Cloud APIs, SQL Maestro), DataBricks lakehouses and well versed with Data Version Control (DVC).

As a data and AI expert, Ebrahim thrived in diverse teams tasked with creating innovative AI-driven systems, all within an agile principals of continuous collaboration and improvement. He has international experience in working with, and managing and training teams with diverse backgrounds, coordinating product development efforts and funding for . His commitment to continuous learning and application of new skills fuels his passion for data, especially in areas with the potential to impact profitability and sustainability.

Technical Competencies

Data Acquisition:

- **Remote sensing:** Utilised different types of sensors (optical, radar, LiDAR) and their capabilities. Image interpretation and analysis: identifying features, extracting information, classifying land cover, etc. Familiar with satellite platforms and data access platforms, radiometric and geometric corrections.
- **Geographic Information Systems (GIS):** Proficient in industry-standard software like ArcGIS, QGIS, etc. Data input, editing, and manipulation of various spatial data formats (vector, raster). Spatial analysis: buffer zones, overlays, proximity analysis, network analysis, etc. Creating thematic maps and visualizations.
- **Global Positioning System (GPS):** Experience with different types of GPS receivers and their accuracy levels. Planned and conducted field data collection using GPS. Worked with differential GPS correction techniques. Unmanned Aerial Vehicles (UAVs) and Drones: basic experience with drone platform operation and data acquisition regulations. Flight planning and data capture techniques for specific applications. Basic processing and manipulation of drone-acquired imagery and point clouds.
- **Internet of Things (IoT):** Worked with IoT sensor networks and data acquisition protocols. Worked with geospatial data streams from IoT devices. Integrating IoT data with other geospatial datasets.

Data Processing and Analysis:

- **Spatial Statistics:** Applying statistical methods to analyze spatial data patterns and relationships.
- Worked on spatial autocorrelation, hot spot analysis, clustering, etc. Used dedicated geospatial statistics software packages.
- **Geospatial Modeling:** Worked with variety of geospatial models (e.g., suitability analysis, hydrological models, dispersion models). Built, calibrated, and validated models for specific projects.
- **Machine Learning for spatial data:** Applied AI algorithms relevant to geospatial data (Random forest, classification, regression, etc.). Implemented and utilized machine learning tools for tasks like image analysis, object detection, or land cover mapping.
- **Big Data Analytics for spatial data:** Worked with large and complex geospatial datasets using specialized tools and techniques. Cloud computing platforms and cloud-based geospatial analysis tools.

Visualization and Communication:

- **Cartography:** Designed map layouts, and symbolization. Used advanced cartographic techniques like thematic maps, 3D visualizations, dynamic maps, etc.
- **Web Mapping:** Designed web mapping platforms like Google Maps, OpenLayers, Leaflet, etc. Interactive web maps with custom functionalities and data visualizations. Integrated geospatial data with web applications and dashboards.
- **Data Storytelling:** Effectively communicating insights and discoveries from geospatial data through visuals and narratives. Preparing presentations, reports, and infographics for diverse audiences.

Additional Skills:

- **Programming:** Python, R, JavaScript, SQL familiarity for data processing and scripting automation.
- **Cloud Computing:** Worked with cloud platforms like AWS, Google Cloud, for geospatial data storage, processing, and analysis.
- **Domain Expertise:** Specific knowledge in relevant fields like environmental science, land suitability, and resource management.
- **Problem-solving:** Ability to analyze complex scenarios, identify data-driven solutions, and communicate recommendations effectively.
- **Communication, Collaboration and publication and funding:** Worked effectively with diverse teams and stakeholders. Authored or co-authored more than 50 peer-reviewed and popular science articles. Awarded 2 European projects for geospatial and database development.

Technologies

Data Acquisition and Fieldwork:

- Field data collection apps: Survey123, GeoGebra, Collector for ArcGIS, TerraGo
- Drone data acquisition platforms: DJI Terra, Pix4Dmapper, DroneDeploy
- Real-time kinematic (RTK) GPS software: Trimble Business Center, Leica GeoOffice, Topcon MAGNET
- Environmental monitoring platforms: ArcGIS Field Maps, OpenDroneMap, Esri ArcGIS Survey123 Connect

Data Processing and Analysis:

- Advanced spatial statistics software: GeoDa, SaTScan, R, Python libraries like GeoPandas, PySAL
- Geospatial modeling tools: ENVI, ERDAS Imagine, GRASS GIS, Whitebox GAT
- Machine learning libraries: TensorFlow, PyTorch, scikit-learn, H2O.ai
- Big data analytics tools: Apache Spark, GeoSpark, Hadoop, Google Earth Engine

Visualization and Communication:

- Advanced cartographic software: Adobe Illustrator, Inkscape, QGIS with advanced plugins
- Web mapping development frameworks: Leaflet, OpenLayers, ArcGIS Online API, Google Maps Platform
- Data visualization tools: Tableau, Power BI, QlikView, Shiny (R)
- Interactive storytelling platforms: ArcGIS StoryMaps, KnightLab, StoryMapJS

Additional Skills:

- Programming languages: Python, R, JavaScript, SQL (essential for scripting and automation)
- Cloud computing platforms: AWS, Google Cloud Platform, Azure (for data storage, processing, and analysis)
- Version control systems: Git, GitHub
- Project management tools: Asana, Trello, Monday.com
- Collaboration platforms: Slack, Microsoft Teams, Zoom

Domain-specific tools:

- Environmental science: ENVI, ERDAS Imagine, ArcGIS Pro, Open Foris tools
- Urban planning: UrbanSim, CityEngine, ArcGIS Urban
- Resource management: ArcGIS Land Use Manager, QGIS with specific plugins

Career History

National Institute of Agricultural Botany Ltd, UK	April 2023 – to date	Data Science Manager
Crops For the Future UK	May 2020 – March 2023	Geospatial Data Scientist
Chalmers University of Technology, Sweden	Dec 2021– July 2022	Data Scientist
Crops For the Future Research Center, Malaysia	Nov 2017 – May 2020	Geospatial Data Scientist
Crops For the Future Research Center, Malaysia	Aug 2014 – Nov 2017	Data Manager
Universiti Putra Malaysia	Sep 2008 – May 2014	Geospatial Lead
National Univesity of Singapore	Jan 2008 – Jul 2008	Data Entry Specialist
Universiti Putra Malaysia	Nov 2003 – Aug 2008	Geospatial Analyst
Pooladin Inc.	Sep 2001 – Aug 2002	Director of the Administrative Affairs
Yekanbazz Agro-Industry Co., Pvt.	Jan 2000 - Dec 2000	Project Engineer
Ferdowsi University of Mashhad	Nov 1995 - Dec 1999	IT Support Specialist
Ferdowsi University of Mashhad	Nov 1995 - Dec 1999	Undergraduate Research Assistant

Qualifications

MSc, Applied Data Science, Department of Computer Science and Engineering, University of Gothenburg and the Chalmers University of Technology. Sweden. (Axel-Adler scholarship)

PhD, GIS and Geomatics Engineering, Faculty of Engineering, Universiti Putra Malaysia.

MSc, Precision Farming, Faculty of Engineering, Universiti Putra Malaysia, Malaysia.

B.S. Agricultural Engineering, Faculty of Agriculture, Ferdowsi University of Mashhad.

CAREER EXAMPLES:

European Commission Geospatial Data Scientist Jun 2017-Mar 2023

Nottingham University

Project Name: LANDSUPPORT ProResilience

Category: Data Science & Climate Modelling

Project Description: This project, titled LANDSUPPORT ProResilience, aimed to evaluate the potential of proso millet as a climate-resilient crop that could promote sustainable agricultural diversification in Sri Lanka. The project made extensive use of data management, simulations and modelling across a range climate data for the current and future scenarios.

My role:

- Developed a modelling framework to assess the potential of proso millet as a climate-resilient crop for sustainable diversification. <https://zenodo.org/records/7456224>
- Calibrated Agricultural Production Systems Simulator (APSIM) model for 95 locations in Sri Lanka.
- Managed a large simulation modelling and mapping cluster for climate computation on GCP
- **Highlight:** The project equips extension workers with the knowledge that is required for guiding millet farmers in Sri Lanka.

European Commission Data Science Manager Jan 2024-present

UK National Institute of Agricultural Botany

Category: Agritech & NLP Integration

Project Description: This project combines elements of agricultural technology (agritech) and Natural Language Processing (NLP). It bridges the gap between structured agricultural data and a large language model, aiming to generate human-readable insights through NLP techniques. The project also falls under the umbrella of agritech by focusing on data and models that can be beneficial for the agricultural domain.

My role:

- The project leverages over 2.5 GB of structured agricultural data.
- The project utilizes the capabilities of the Gemini large language model.
- Ongoing project that is aimed at linking the domain specific knowledge (with more than 2.5 GB of structured data) with Gemini large language model.
- The project will be implemented on AWS with an online interface. <https://github.com/geoej/AiSQLquery>
- **Highlight:** The augmented Large Language Model can accurately generate human-readable adaptation measurement for any location

European Commission Geospatial Data Scientist Dec 2020-Nov 2021

Crops For the Future UK

Project Name: LandSupport ViableCrop

Category: Land Management & Geospatial Data Analysis

Project Description: This project falls under the umbrella of sustainable land management by developing a framework to assess the feasibility of introducing new land uses while considering economic viability and potential climate impacts. The project leverages geospatial data analysis techniques using R and Google Earth Engine, showcasing their utility in this domain.

My role:

- Developed a multifaceted land suitability analysis approach for feasibility assessment based on a data from different sources (MySQL databases, Google Earth Engine).
- Performed detail mapping and land use planning using R Geospatial packages.
- Conducted feasibility assessment for profitability and ROI.
- **Highlight:** First ever end to end feasibility for a new land use option that includes economics and projection against climate change

Crops For the Future UK Geospatial Data Scientist Sep 2022-May 2023

Crops For the Future UK

Project Name: UK Crop Diversification

Category: Data Science & Sustainable Food Systems

Project description: This project combines agricultural data science with the goal of promoting sustainable food systems. It utilizes diverse data sources and geospatial analysis techniques to identify climate-resilient crops that could contribute to a more diversified and secure food supply for the UK.

My role:

- Developed an analysis framework for diversification in the United Kingdom.
- Climate, soil, economics, and market demand data was used.
- API database of 2700 crops, combined GIS and data mining to determine the most promising climate resilient crop for the UK: <https://www.mdpi.com/2077-0472/13/4/787>

Highlight: The project's significance was recognized by its selection for presentation to HRH Princess Ann on October 10th, 2023, focusing on solutions for UK food and nutrition security. (<https://www.mdpi.com/2077-0472/13/4/787>)

European Commission Geospatial Data Scientist Nov 2019-July 2022

Nottingham University

Project: LandSupport CropDivMap

Category: Data Science & Spatial Planning for Sustainability

Project Description: This project pioneered a data-driven approach to identify underutilized crops (UCs) with potential for sustainable agricultural diversification in Italy. This project falls under the umbrella of agricultural data science and spatial planning for sustainability. It leverages data analysis techniques to identify underutilized crops with potential for diversification, promoting a more resilient and sustainable agricultural system in Italy.

My role:

- Developed a data-driven approach for shortlisting underutilized crops (UCs) for sustainable agricultural diversification across Italy: <https://www.mdpi.com/2073-4395/12/7/1636>
- Lead the team for data management and mapping.

- Published the first ever map for diversification of crops in a European country:
https://www.mdpi.com/agronomy/agronomy-12-01636/article_deploy/html/images/agronomy-12-01636-g003.png
- **Highlight:** The first ever map for crop diversification was produced for ITALY. This shortlist provides valuable insights for policymakers, researchers, and farmers who are interested in promoting crop diversification.

Geoej Analytics

Geospatial Data Scientist

Dec 2022-Feb 2023

Stockholm Environment Institute

Project Name: TRASE: Data-Driven Transparency Initiative for Trade Mapping

Project category: Environmental Monitoring & Geospatial Data Analysis

Project Description: This project, TRASE, focused on promoting transparency in international trade and financing, with a specific application to deforestation in the Amazon rainforest.

My role:

- Conducted land cover analysis to assess the deforestation extent within the Amazon region. This likely involved utilizing satellite imagery and geospatial data analysis techniques.
- Developed automated routines using Google Earth Engine (cloud-based geospatial analysis platform) and R spatial packages (statistical software for spatial data analysis). These automated routines likely streamlined the analysis process and facilitated efficient monitoring of deforestation patterns.
- **Highlight:** The project received positive feedback for its delivery and write-up, indicating successful completion and clear communication of the findings.

European Commission

Geospatial Data Scientist

Jan 2021-Jan 2022

Crops For the Future UK

Project Name: China Crop Diversification

Category: Spatial Agricultural Planning & Sustainable Food Systems

Project Description: This project explored the potential for diversifying China's agricultural landscape by investigating the suitability of bambara groundnut as a new crop.

My role:

- Carried out spatial suitability analysis of bambara groundnut in China using stochastic environmental research and risk assessment, sub-daily swat models, cluster analysis, economic data, climate data, soil data, crop production data, and FAOSTAT data:
<https://onlinelibrary.wiley.com/doi/full/10.1002/fes3.358>
- Lead the team for data collection and mapping and analysis.
- **Highlight:** The project's findings have demonstrably made an impact, influencing land-use planning for food and nutrition security in both Africa and China.

Geoej Analytics

Geospatial Data Scientist

July 2019-Dec 2020

Geoej Analytics

Project Name: 3D Digital Maps

Category: Spatial Data Science & Open Data Infrastructure

Project description: This project combines elements of spatial soil science and open data infrastructure. It leverages geostatistical analysis and spatial modeling techniques to create a 3D digital soil database, providing a freely accessible resource for further research on soil properties and related agricultural and environmental applications. The project's pioneering nature and lasting impact within Sri Lanka make it a notable contribution to the field.

My role:

- Lead the development of The first version of nation-wide open 3D soil database for Sri Lanka: <https://www.sciencedirect.com/science/article/pii/S235234092031235X>
- Performed geostatistical analysis with R and open source GIS software.
- Prediction was made for all locations across the country and across the depth of 100cm.
- **Highlight:** First attempt to develop digital soil data for an Asian country. The database has since been used for soil carbon stock and agronomic biofortification in Sri Lanka

Chalmers University of Technology Sweden Data Scientist Dec 2021-Jul 2022

Geoej Analytics

Project Name: Spatial Generative Adversarial Neural Networks

Category: Environmental Machine Learning

Project description: This project explored the application of Spatial Generative Adversarial Neural Networks (SGANs) for predicting soil properties in unsampled areas. Due to the high cost of traditional soil sampling methods, this project aimed to develop a more cost-effective and accurate approach. By utilizing SGANs in conjunction with machine learning models, the project successfully demonstrated the ability to improve the accuracy of soil property data in unsampled locations. Additionally, the project implemented SGANs for data mining from published resources, showcasing the potential of this technique for augmenting traditional data collection methods.

My role:

- Utilised the Spatial Generative Adversarial Neural Networks (SpaceGAN) and machine learning models to predict soil properties at unsampled areas (due to high cost). The results show that this method can improve the accuracy of soil information.
- Spatial Generative Adversarial Networks (SpaceGANs) for data mining from published resources and machine learning models using Python Pytorch <https://gupea.ub.gu.se/handle/2077/72200?show=ful>
- **Highlight:** This project used Generative Machine learning to develop and augment traditional data

European Commission Geospatial Data Scientist Nov 2017 - May 2020

Nottingham University

Project Name: CropBASE: A Suite of Apps for Agricultural Diversification

Category: AI-Powered AgTech for Diversification

Project description: This project involved the development of CropBASE, a suite of mobile and web applications designed to promote agricultural diversification. As a Geospatial Data Scientist at the European Commission's Joint Research Centre (JRC), I led a team of 24 data specialists and software developers in creating CropBASE. The project utilized PHP and MySQL for the database and data portal, and further implemented the platform on Google Cloud Platform to ensure scalability and accessibility.

My role:

- Lead a team of 24 data specialists, and software developers to develop CropBASE suite of Apps for agricultural diversification: <https://www.cropbase.co.uk>
- The database data portal was implemented based on PHP and MYSQL and further implemented on the Google Cloud Platform

- **Highlight:** CropBASE's success is evidenced by the EUR 290,000 investment it received from the European Commission's RADIANT project. This funding signifies the project's potential to contribute significantly to the advancement of agricultural diversification initiatives.

European Commission Geospatial Data Scientist Jan 2018-May 2020

Nottingham University

Project Name: SelectCrop

Category: AI-Powered Precision Agriculture

Project Descriptions: This project, undertaken as a Geospatial Data Scientist at the European Commission's Joint Research Centre (JRC), involved the development of a prototype application called SelectCrop. This web-based tool allows users to perform on-the-fly analysis of crop suitability for any terrestrial location. I led the team in creating the prototype, utilizing a combination of PHP, R, and SQL for the backend development. The project leveraged Google Cloud Platform (GCP) to ensure scalability and global accessibility.

My role:

- Lean the team to develop Crop suitability mapper prototype available at <https://www.cropbase.co.uk/src/cropgrids/cropgrids.php>
- The backend is developed based on PHP, R, SQL and is implemented on GCP
- **Highlight:** SelectCrop's key strength lies in its ability to provide real-time crop suitability analysis for any location on Earth. This empowers farmers and agricultural stakeholders to make informed decisions regarding crop selection based on specific environmental conditions.

Geoej Analytics Data Scientist Jan 2020-May 2020

Geoej Analytics

Project Name: CropModel Input Generator: Streamlining Crop Modeling Workflows

Category: AI-Powered Crop Modeling Platform

Project Description: This innovative web application, accessible at <https://geoprocessing.shinyapps.io/DSSAT-INPUT-Shiny/>, represents the first attempt to utilize R and the Shiny framework to create a user-friendly platform specifically designed to generate inputs compatible with DSSAT crop modeling software.

My role:

- DSSAT-INPUT: an online DSSAT-compatible crop modelling input generator <https://geoprocessing.shinyapps.io/DSSAT-INPUT-Shiny/>
- The backend was developed based on R and Shiny and implemented on Shinyapp cloud
- **Highlight:** The CropModel Input Generator simplifies the process of creating crop model inputs, a traditionally time-consuming and complex task. This web-based tool empowers researchers and agricultural professionals to streamline their workflows and dedicate more time to analysis and interpretation of modeling results.

Government of Malaysia Geospatial Lead Sep 2010 - Nov 2013

Geoej Analytics

Project Name: Spatial Temporal Regression for Real Estate Valuation

Category: Advanced Real Estate Valuation with Spatiotemporal Analysis

Project Description: This project delves into the comparison of linear regression and spatial-temporal autoregressive models for mass appraisal of single-storey residential properties. An R code had to be developed to analyze the specifications of these models and assess their effectiveness in valuation.

My role:

- Developed R code to compare specifications of linear regression and spatial-temporal autoregressive models in mass appraisal valuation for single storey residential property: <http://psasir.upm.edu.my/id/eprint/60054>
- **Highlight:** Improved Accuracy in Mass Appraisal: By comparing and potentially identifying a superior model (spatial-temporal autoregressive model), the project could have implications for improving the accuracy and efficiency of mass appraisal processes.

Government of Malaysia Geospatial Lead Jan 2014 - Sep 2014

Geoej Analytics

Project Name: Geostatistical web mapping for precision farming

Category: Precision Agriculture Platform (PAP)

Project Description: As Geospatial Lead at Geoej Analytics for the Government of Malaysia (Jan 2014 - Sep 2014), I spearheaded the development of PFMMap, an innovative web-based application designed to empower precision farming practices. PFMMap leverages R statistical libraries to create a user-friendly platform for geostatistical soil mapping.

My role:

- Developed Shiny PFMMap software, soil mapper using R statistical libraries <https://geoprocessing.shinyapps.io/geoprocessing/> data for testing the App: <http://b.link/a69>
- Precision Soil Analysis: PFMMap allows farmers to upload or utilize existing data to generate high-resolution soil maps, identifying spatial variability in soil properties crucial for informed decision-making.
- Data Visualization: The application utilizes interactive map visualizations to effectively communicate complex soil data, enabling farmers to easily identify areas requiring specific fertilizers, amendments, or other crop management practices.
- **Highlight:** PFMMap represents a significant advancement in precision agriculture for Malaysia. By providing a user-friendly and accessible tool for geostatistical soil mapping, PFMMap empowers farmers to optimize resource allocation, improve crop yields, and promote sustainable agricultural practices. A demo of the PFMMap software here: <https://geoprocessing.shinyapps.io/geoprocessing/>. Sample data for testing the application is available here: <http://b.link/a69>.

1Spatial Data Scientist Jan 2014 – Sep 2014

Geoej Analytics

Project Name: Automatic valuation system for real properties (stand alone software)

Category: AI-Powered Real Estate Valuation (Standalone Software)

Project Description: This innovative tool utilizes geospatial regression techniques to automate the valuation process for real properties. The software is built on R programming language for statistical analysis and leverages TCL/TK for a user-friendly graphical interface.

My role:

- Developed An Automated Valuation System for real estate appraisal based on geospatial regression techniques.
- **Highlight:** The standalone software automates the valuation process, potentially leading to significant improvements in efficiency and scalability compared to traditional manual methods. By creating a user-friendly software application, this project could potentially make real estate valuation more accessible to a wider range of users, such as appraisers, investors, and homeowners.

Geoej Analytics

Project Name: Optimizing Geospatial Data Collection and Analysis for Resource Management

Category: Efficient Geospatial Sampling and Analysis for Resource Management

Project Description: Development of a novel geostatistical analysis and mapping algorithm. This innovative approach resulted in a substantial reduction (70%) in the number of samples required for spatial mapping, significantly improving efficiency and reducing costs associated with data collection. The

My role:

- Developed a complete algorithm for geostatistical analysis and mapping that would reduce the number of samples required for mapping by 70%:
<https://link.springer.com/article/10.1007/s12517-015-1912-6>
- Developed object-oriented approach for image segmentation using LandSat data (UGSS)
- Granted RM 135,000 (Ringgit Malaysia). "Developing a cellular automata-based planning decision support system" (01-01-04-SF0979), Ministry of Science, Technology and Innovation
- **Highlight:**
 - The innovative sampling algorithm demonstrates a significant achievement with real-world impact. By reducing the number of samples needed for accurate mapping, this project has the potential to optimize resource allocation and streamline data collection processes in various government sectors responsible for resource management, such as environmental monitoring, forestry, and land-use planning.
 - The project titled "Developing a cellular automata-based planning decision support system" received a grant of RM 135,000 (Ringgit Malaysia) from the Ministry of Science, Technology and Innovation (Ref: 01-01-04-SF0979). This further highlights innovative contributions in the field of geospatial analysis and planning.

Geoej Analytics

Project Name: Land Cover Change in Southeast Asia (Data Entry Specialist)

Category: Remote Sensing Data Management

Project Description: To support the research on land-use land-cover change (LULC) in Southeast Asia the project needed a metadata system to enable tracking the datasets (satellite and ground data). A literature review was also needed to be conducted to develop self-organising maps for LULC concepts.

My role:

- Designed and implemented a metadata system to organize and manage remote sensing data used in the LULC project. This system likely involved creating detailed descriptions of the data source, format, acquisition date, and other relevant information, ensuring efficient data access and analysis for researchers.
- Conducted a literature search for the project titled "Land-use land-cover change research explored using self-organizing map." This likely involved identifying relevant academic publications, summarizing key findings, and potentially creating a bibliography to support the research efforts.
- **Highlight:** The work provided a critical foundation for these environmental research projects. By establishing a robust metadata system, transcribing important data records, and conducting literature reviews, the accuracy, organization, and accessibility of information, ultimately contributing to a deeper understanding of LULC patterns and their environmental consequences in Southeast Asia.

Geoej Analytics

Project Name: Forest Change in Western New York (Data Entry Specialist)

Category: Ecological Data Management

Project Description: This project focused specifically on data transcription for the research investigating "Effects of clearance and fragmentation on forest compositional change and recovery after 200 years in western New York."

My role:

- Transcribed records for a separate project investigating the "Effects of clearance and fragmentation on forest compositional change and recovery after 200 years in western New York." This task involved meticulously converting handwritten recordings into digital text, ensuring accurate data preservation and accessibility for further analysis.

Highlight: The meticulous data transcription efforts ensured the preservation and accessibility of valuable ecological data. This data likely documented the composition of forest ecosystems over time, including changes in tree species abundance and diversity due to past human activities like clearance and fragmentation. By accurately converting handwritten or audio records into digital format, I facilitated further analysis and contributed to a better understanding of forest recovery processes in western New York.