

# Hazidien Ramadhan Utomo

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## Summary

Urban and Regional Planning student at Institut Teknologi Sepuluh Nopember (ITS) with strong expertise in spatial analysis, remote sensing, and urban modeling. Experienced in using ArcGIS, Google Earth Engine (GEE), and GeoSOS-FLUS to support land use and urban energy planning. National-level GIS infographic competition 3rd place winner, demonstrating strong analytical and visual communication skills.

## Education

### Institut Teknologi Sepuluh Nopember

Surabaya, Indonesia

Major in Urban and Regional Planning,

Aug 2022 – Present

GPA: 3.34/4.00

Achievement:

- 3rd Place Winner of the Infographic Research Competition – GIS THEMATICAL COMPETITION National Level
- 1st place in Football regional competition of Surabaya city Trofeo UINSA

## Work Experiences

### Assistant Lecturer – Planning Analysis Methods / Metode Analisis Perencanaan

Aug 2025 - Dec 2025

*Assistant Lecturer*

Surabaya, Indonesia

Academic teaching support role focused on qualitative, quantitative, and GIS-based spatial planning analysis, supporting laboratory sessions, applied coursework, and student assessment in urban and regional planning.

- Assisted in delivering **practical and analytical modules** on qualitative and quantitative planning methods, including Content Analysis (CA), AHP, SWOT-PEST, Delphi, IPA, regression analysis, **spatial regression**, clustering, MDS, and linear programming, in accordance with the official course syllabus (RPS).
- Supported **GIS-based spatial analysis sessions**, introducing students to **spatial autocorrelation (e.g., Moran's I)** and spatial data interpretation to enhance spatial decision-making and regional planning analysis.
- Prepared and delivered **laboratory sessions and learning materials**, including practicum modules, case studies, pre-tests, and post-tests, and evaluated student performance through grading practicum outputs and mini research assignments.

### PT Greenova Daya Prima

Jul 2025 - Aug 2025

*Spatial Analysis Assistant – Renewable Energy (Internship)*

Surabaya, Indonesia

Energy consulting firm engaged in building energy baseline studies, rooftop solar potential mapping, and spatial analysis to support urban energy transition and decarbonization planning.

- Conducted **solar radiation spatial analysis** using **GIS** and **LiDAR-derived nDSM data** to map annual **rooftop solar potential** across Surabaya.
- Analyzed **spatial variability of solar irradiance (kWh/m<sup>2</sup>/year)** considering **building orientation, shading, land cover, and urban density** to **identify high-potential rooftop areas**.
- **Calculated electricity generation potential of rooftop PV systems**, estimating up to **~234 kWh/m<sup>2</sup>/year per panel** using solar radiation data, module efficiency, and performance ratio assumptions.

### British Embassy Jakarta

Jun 2024 - Nov 2024

*Surveyor MRT Surabaya Project*

Surabaya, Indonesia

Urban transport planning project focused on transportation demand assessment, traffic movement analysis, and commuter behavior studies to support the planning and development of the Surabaya MRT system.

- Conducted **transportation demand and mobility surveys**, including household, employee, and administrative surveys, to **analyze commuting patterns and mode choice behavior**.
- Performed **traffic movement and performance assessments**, including vehicle speed tests and traffic counting surveys, to evaluate road capacity, congestion levels, and travel time characteristics.
- Assisted in **data collection, validation, and preliminary analysis of traffic flow, user travel behavior, and transport system performance** to support **MRT planning** and policy recommendations.

## Skills

- **GIS & Spatial Analysis:** ArcMap / ArcGIS, QGIS, Google Earth Engine (GEE), spatial analysis, spatial statistics, spatial regression, spatial autocorrelation, map visualization;
- **Remote Sensing & WebGIS:** JavaScript (GEE), satellite imagery processing, land use & land cover analysis, basic HTML for WebGIS development;
- **Modeling & Decision Support:** Land use modeling (GeoSOS-FLUS), renewable energy, transportation & disaster spatial analysis, MCDA (Super Decisions), HEC-RAS;
- **Soft Skills:** Communication, teamwork, analytical problem-solving, Leadership

## Project Experiences

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### Undergraduate Thesis Research

Sep 2025 – Present

- Designed a **GIS-based spatial analysis methodology** to assess **rooftop solar energy potential at the district level** in Surabaya by integrating building data, land use, and solar radiation parameters.
- Conducted **spatial data preparation and analysis** to generate **renewable energy potential maps by district**, incorporating building characteristics and spatial driving factors.
- Developed planned research outputs including **district-level renewable energy potential maps** and **priority ranking of districts** to identify **high-potential areas for initial urban solar PV deployment** (*ongoing research*).

### Spatio-Temporal Deforestation Modeling Project – West Sumatra

Nov 2025 – Dec 2025

- Conducted **spatio-temporal deforestation analysis** in West Sumatra using **multitemporal Landsat imagery (2009–2024)** processed on **Google Earth Engine** to identify **forest loss, degradation, and regrowth patterns**.
- Applied vegetation index–based thresholding and **Normalized Difference Fraction Index (NDFI)** to detect deforestation dynamics, hotspot areas, and temporal change trajectories at the provincial scale..
- Generated spatial outputs including **deforestation maps**, hotspot analysis, and comparative method evaluation to support environmental monitoring and **spatial planning decision-making**.

### Baseline Energy Consumption in the Building Sector in Kota Surabaya

Jul 2025 – Aug 2025

- Assisted in compiling and analyzing **baseline electricity consumption data** for residential, commercial, and government buildings in Surabaya.
- Supported **spatial integration of building datasets**, land use data, and energy indicators to enable city-scale energy baseline assessment.
- Contributed to **energy planning analysis** to support urban decarbonization strategies and renewable energy integration.

### Rokan Hulu Land Use Modelling Project

Jan 2025 – Feb 2025

- Conducted **land use change modeling** using GeoSOS-FLUS based on Rokan Hulu land use data (2018 & 2023) to train and validate ANN-based transition potentials.
- Simulated **land use scenarios for 2023–2043** by integrating driving factors and **Markov Chain** analysis to project future land use dynamics.
- Evaluated model performance using **Kappa statistics and Figure of Merit (FoM)** to assess prediction accuracy and spatial agreement.

### MRT Surabaya Project – Transportation Survey & Demand Analysis

Jun 2024 – Nov 2024

- Conducted **transportation demand surveys** (household, employee, and administrative) to analyze commuting behavior and travel patterns.
- Performed **traffic counting and vehicle speed surveys** to assess traffic flow, congestion, and roadway performance.
- Supported **data collection and preliminary analysis** for MRT planning and sustainable urban transport development.

## Certification

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- **Aksara Lab Indonesia:** Intensive Bootcamp – LiDAR Data Classification & Contour Generation (2025)
- **Geoaccess Indonesia:** Thematic GIS Training – Land Cover Change Prediction using QGIS & GeoSOS-FLUS (2025)
- **Geoaccess Indonesia:** Thematic GIS Training – Flood Modeling Based on Land Use Change & Prediction (2024)
- **Geoaccess Indonesia:** Basic & Thematic Google Earth Engine (GEE) Training – Deforestation Impact on Air Pollution Analysis (2024)
- **Aptanata Community:** Geographic Information System Training – Facility Coverage Enhancement & Road Loading Impact Scenarios (2024)
- **Aptanata Community:** Geographic Information System Training – Service Area & Facility Service Reach Analysis (2024)

## Organizational Experiences

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### UKM Sepakbola ITS

Jan 2024 - Dec 2024

#### Head of the Football Division

- Organized and developed UKM Sepakbola ITS members, including training coordination and player development programs.
- Coordinated team delegation for regional football championships and served as acting coach during competitions and training sessions when the main coach was unavailable.

### Planopolis ITS

Jul 2023 - Dec 2023

#### Asisstant Manager of Competition

- Led the **planning, organization, and execution** of all competition-related activities for Planopolis ITS, ensuring smooth, timely, and well-coordinated events.
- Developed and implemented the **competition's strategic vision**, aligning programs with the overall objectives of Planopolis ITS and the Department of Urban and Regional Planning.

### Aksi Sepuluh Nopember 2023

Aug 2023 - Dec 2023

#### Vice Chairman I – Campus Orientation Event

- Coordinated and supervised **internal divisions** (events, equipment, logistics, and operations).
- Led **planning, team coordination, and decision-making**, assisting the Event Chairman in execution.
- Successfully delivered a large-scale orientation event that received **media coverage by JTV**, enhancing public visibility and institutional outreach.