

WIP

Deploying AI models to the web and integrating them with GIS systems like QGIS, along with Google Maps tiles and OSM. This approach aims to enhance geospatial analysis and visualization and create a feedback loop for more accurate topographical models.

Objective:

Develop a web-based system that integrates machine learning models with GIS data and Google Maps tiles to enhance geospatial analysis and visualization in QGIS. This system aims to provide advanced predictive analytics to create an accurate or best representation of the topographic conditions of our sites.

How? *The below is under development and subject to change upon feedback.*

1. AI Model Deployment:

- Training and Exporting the Model: Use geospatial datasets to train a machine learning model tailored for specific geospatial analysis tasks (e.g., land use classification, environmental monitoring).
- Deployment Platform: Choose a web framework (vue) or serverless options (AWS Lambda, Google Cloud Functions) to deploy the model as a REST API.

2. Web API Development:

- API Creation: Develop RESTful API endpoints to handle GIS data input, process it with the AI model, and return the results.
- Data Handling: Ensure the API can accept various geospatial data formats (e.g., GeoJSON, shapefiles) and process them accordingly.

3. Integration with Google Maps:

- Tile Retrieval: Utilize Google Maps Static API or JavaScript API to fetch map tiles for base mapping.
- Data Overlay: Process and overlay GIS data and AI model outputs on Google Maps tiles to provide a comprehensive visual context.

4. Data Visualization in QGIS:

- Data Formatting: Convert the AI model's output into GIS-compatible formats (GeoJSON, shapefiles) for seamless integration with QGIS.
- Automation Scripts: Use QGIS Python API (PyQGIS) or develop QGIS plugins to automate data fetching from the web API and visualize it within QGIS.