# **Streets of Women (G)**

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### **RESEARCH AREA**

### Geospatial Information

### **KEYWORDS**

OpenStreetMap, GeoAnalysis, GeoVisualisation

### **TECHNOLOGIES**

– Languages: Python - JavaScript

– Suggested SW: Postgres-PostGIS, Leaflet

### **DESCRIPTION**

The project requires to develop a Web app to enable analyzing and displaying streets named after female role models for Italy. The app will consume OpenStreetMap (OSM) data to detect the streets of interest and compute city-wise summary statistics. The recognized female names will be searched using the Wikipedia API, and the percentage of positive findings will be included in the summary statistics record. The app will include a dedicated map-based client to visualize and query the data.

The project is related to the activities of an international association (Geochicas: <https://geochicas.org/>) of women belonging to OSM. Their aim is to close the gender gap in the OSM community, where it is estimated that women account for 3% of people who collaborate globally. One of their projects is “Streets of Women”.

# **Land cover AI-classifier with OpenStreetMap (I/G)**

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### **RESEARCH AREA**

### Geospatial Information

### **KEYWORDS**

OpenStreetMap, Machine Learning, Land Cover Maps

**TECHNOLOGIES**

– Languages: Python - JavaScript

– Suggested SW: Postgres-PostGIS, Leaflet, Overpass API

### **DESCRIPTION**

OpenStreetMap (OSM) provides increased data availability for multiple purposes, such as validating land cover maps. This project requires to consume OSM data to match land cover classes by using OSM data labels. The extracted data should serve to calculate label counts, object areas and types within each spatial unit of a selected study area. This information is used to train a machine learning model to classify each unit according to predefined categories.

The project is strictly connected to an ESA CCI + project related to computation and assessment of high-resolution global land cover maps.

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# **Google Earth Engine App for desert monitoring (I/G)**

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### **RESEARCH AREA**

### Geospatial Information

### **KEYWORDS**

Earth Engine, Desert, Earth Observation

### **TECHNOLOGIES**

– Languages: JavaScript and/or Python

– Suggested SW: Google Earth Engine, Node.js

### **DESCRIPTION**

Google Earth Engine (GEE) is promising to develop the next generation of data intensive Web mapping platform. This projects requires to exploit the GEE API to create a map-based Web app to search and browse time series of optical satellite imagery (NASA-Landsat 8 and possibly ESA-Sentinel 2). Imagery will refer to the Emirates Desert. The app should be designed for further integration of processing functionalities, such as imagery classification, already partially available from the GEE API store.

The project is partially connected to an ESA CCI + project related to computation and assessment of high-resolution global land cover maps.

# **[Scientific](https://pii.dei.polimi.it/visualizzazione-di-dati-scientifici/" \o "Permalink to Visualizzazione di dati scientifici) data visualization**

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### **RESEARCH AREA**

### Information Systems

### **KEYWORDS**

Big Data, data and process modeling

### **TECHNOLOGIES**

### – Python, Postgres

### **DESCRIPTION**

Visualization of numeric data sets, starting from data available in a Postgres database and some analysis functions. Implementation of model-based exploration visualization interface modules.

# **Tweet geolocation: quality improvement based on generic geographic terms**

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### **RESEARCH AREA**

### Information Systems

### **KEYWORDS**

Information extraction from social media, microservices

### **TECHNOLOGIES**

### – Python

### – OSM with Nominatim

### – Postgres with PostGIS

### – REST, Jason

### **DESCRIPTION**

### Exploratory projects are proposed for the use of information from social networks and / or crowdsourcing to collect information to improve the quality of information in the maps for emergencies (earthquakes, floods). Focus will be on information useful to improve the maps generated (semi) automatically immediately after the events starting from satellite data with the EMS system of the European project Copernicus <http://emergency.copernicus.eu/>, see

<http://pernici.faculty.polimi.it/it/e2mc-evolution-of-emergency-copernicus-services/>