



Call for candidates for a doctoral position at GEP

REF. G2215

Published: 28/06/2022

Deadline: 28/07/2022

Reference: G2215

Research Activities: Geographic Information Systems (GIS) for Energy Modeling Applications

Candidate: Ph.D. Student

Location: Benguerir

Duration: 30 months

Eligibility: Be enrolled in a doctoral thesis at a National University

DESCRIPTION

As part of a collaborative R&D project, funded by **IRESEN** (Morocco) and **CDTI** (Spain) within **INNO-ESPA** call for projects, 1 funded Ph.D. position in GIS is open.

This project, named "**EVPLAN**", has been submitted jointly by the **Green Energy Park** (Morocco), **Lexus Ingénierie** (Morocco), and **EasyCharger** (Spain). It aims at creating tools to support the planning and mapping of public EV charging infrastructure. The tools would be used to guide the development of public EV charging infrastructure to fit better with the needs and optimize initial investment. The tools will as well be an asset for EV users to map the infrastructure, plan routes, and have better access to the charging infrastructure.

The GIS-based tool will provide optimal allocations of EV infrastructure based on a bottom-up approach that takes into account existing infrastructure (roads, electrical network, parkings...), as well as socio-economic criteria (social statistics, population density, GDP, individual incomes...).

The tool will include some advanced features by providing some ancillary services to the grid, as well as some monitoring and management functionalities for infrastructure operators. End-users will also benefit from this tool by helping them find the best locations for EV charging. Considering the replication of the tool on other regions or cities, the effect of different layers or weighting factors on the allocation map will be taken into account. Examples could be cities of different sizes (spatial extent and population), located in different regions (Gross Domestic Product, transport demand and options, climate conditions). Otherwise, an innovative business model will be designed during this project to determine how it will be possible to create and deliver value to end customers.

ROLE OF Ph.D. STUDENT

During her/his journey in GEP, the PhD student will have to perform the following tasks:

- Detailed bibliographic study and state-of-the-art on similar GIS-based applications.
- Methodology definition, identification of requirements, and design.
- Data spatialization and algorithms development.
- Development of the tool prototype and web interfaces.
- Application of the prototype in two regions.



- Business model and replication analysis for the African context.
- Deliverables, monitoring, and progress reports.
- Trainings and scientific activities of GEP through publications, scientific communications, patents, etc.

REQUIREMENTS

The candidate must have an **Engineering degree**, a **Master's training**, or an equivalent diploma in **Geographical Information Systems (GIS)**, with advanced skills in **Data Science**, and extensive knowledge in **Modeling** and **Optimization**. We are looking for an autonomous student capable of innovation and initiative, wishing to work on a multidisciplinary research project:

- Consciousness of GIS-based applications in the field of Energy.
- Mastery of simulation GIS software: ArcGIS, QGIS, etc.
- Good skills and knowledge of modeling and optimization.
- Excellent coding skills in Python.
- Skills in AI, Machine Learning, Data Science & Big Data, and good knowledge about their applications in Energy Systems.
- Good level in English and French, creative spirit, and autonomy.
- Strong interest in interdisciplinary research.

The candidate should send the following documents to contact@greenenergypark.ma

- A curriculum vitae
- Copies of university degrees (doctorate registration certificate)
- A research proposal linked to the project description and to one of the issue areas of the call (2000 words, containing an explanation of the topic, Scientific background of the candidate, Methodology for completion of research proposal)
- Letter of recommendation by the PhD supervisor professor.