(BL261/2024-IST-ID)

Scientific Initiation Studentships

Applications are open for 1 Scientific Initiation Studentship, within the framework of project AHEAD (AI-Informed Holistic Evs Integration Approaches For Distribution Grids), co-financed by the European Commission (GA 101160665), under the following conditions:

Scientific Area: Software Engineering and Information Systems

Admission Requirements:
The candidate must also:

a) *Hold a bachelor's in software engineering, computer science, or informatics engineering.*
b) *Have very good English written and oral skills.*
c) *Have knowledge of data science methods.*
d) *Have very good analytical skills.*
e) *Have very good programming skills in programming languages such as Python, including knowledge of the most common frameworks.*

Workplan: The AHEAD project will create a simulation environment capable of predicting the most convenient location to place the electric vehicle (EV) charging stations and optimize both the usage of the power grid resources, and the charging stations. This simulation environment will exploit the unique features of currently available AI models and include two layers: the spatial mapping one (placing the chargers where the people need them to be), and the power grid one (placing the chargers where the grid can host them).
Flexibility services will be designed and tested in the model, to minimize the impact of EV charging pools on the network, and ensure the consumers have economic benefits. Moreover, these smart charging algorithms will be tested in six demonstration sites, dedicated to assessing the technical and economic feasibility of smart charging light and heavy-duty EVs, and boats.
The selected candidate will be working on tasks related to the activities to be developed in Portugal, and on activities related to the clustering and disaggregation of EV charging profiles, including vessels.

a) Research and development of machine-learning and data science pipelines to understanding the load disaggregation (aka NILM) problem.
b) Re-design and implementation of the Deep-NILMtk toolkit, with a particular focus on the inclusion of modes for EV disaggregation.
c) Preparation of datasets, development and evaluation of disaggregation algorithms.
d) Assist the research team in the deployment and maintenance of the different technologies in the Funchal demonstrator.
e) Assist the research team in producing reports and scientific presentations/publications.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; IST-ID Research Fellowships Regulation, available on https://ist-id.pt/files/sites/43/regulamento-de-bolsas-da-ist_id-2.pdf.

Workplace: The work will be developed at the Interactive Technologies Institute / LARSyS, under the scientific supervision of Dr. Lucas Pereira. The activities will be developed in the city of Funchal, where the demonstration activities will be conducted. The position is 100% on-site.

Duration: The research fellowship(s) will have a duration of 12 months. It's expected to begin on 12/2024. The research fellowship cannot be renewed.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is € 601.12, being the payment method by Wire Transfer.

Selection methods: The selection methods will be the following:

a) Curriculum Vitae evaluation (70%)
b) Motivation Letter (30%)
c) Individual Interview (as a tie-break procedure, to be conducted online), to be conducted online

Composition of the selection Jury: Dr. Lucas Pereira (President), Prof. Hugo Morais, Prof. Augusto Esteves

Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Application deadline and formalization: The call is open from October 25 until November 8, 2024.

It is mandatory to formalize applications with the submission of the following documents:

i) B1 Form – Fellowship application (https://ist-id.pt/concursos/bolsas/);

ii) *Curriculum Vitae*;

iii) Academic degree certificate, where applicable;

iv) Proof of enrollment at an academic degree course or at a course that does not award an academic degree;

v) Motivation letter;

vi) Applications must be submitted to the email*:* *dina.dionisio@tecnico.ulisboa.pt (cc: lucas.pereira@tecnico.ulisboa.pt) with the subject [AHEAD]: Application to BIC-1*

vii) For additional information, please contact Lucas Pereira*:* *lucas.pereira@tecnico.ulisboa.pt with the subject [AHEAD: Inquire on BIC-1]*