

(BL267/2024-IST-ID)

### Post-Doctoral Research Fellowships

Applications are open for 1 (one) Post-Doctoral Research Fellowship(s), 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:** Engenharia e Gestão de Sistemas.

**Admission Requirements:**

- a) *to hold a PhD degree obtained in the 3 years previously to the submission of the fellowship application;*
- b) *to have carried out the research work that led to the PhD degree in a different entity from the host institution of the fellowship;*
- c) *Not to exceed, with this fellowship contract, including the possible renovations, an accumulated period of 3 years in this type of fellowship, continuously or with interruptions;*
- d) *Not to have previously held a post-doctoral fellowship from IST-ID.*

*The candidate must also:*

- a) *Have very good English written and oral skills.*
- b) *Have very good analytical skills.*
- c) *Have research experience in the topics of Artificial Intelligence and Data Analytics, preferably applied to the topics of sustainability*
- d) *Ideally the candidate is fluent in Portuguese since the position may involve engaging with local stakeholders.*

**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.

Particular attention is going to be placed on minimizing the impact of smart charging on users' experience and on studying effective defensive mechanisms against cyber-attacks on the charging infrastructure.

The selected candidate will be mainly working on the activities in WP3 (Flexibility Services) particularly in T3.3: EVs flexibility clustering, characterization, and classification with the objective of developing multilevel flexibility services related to EVs grid integration for use in planning and operations by grid operators. This will be achieved through clustering, characterization and classification of flexibility services offered by EVs, their charging profiles and charging stations via AI-based algorithms. Additionally, forecasting tools for operational planning will be developed where the most precise and reliable methods will be integrated into the operational tools developed

through WP4. The candidate will also develop some work in T3.4: Flexibility simulation tools, where the objective is to develop a dynamic platform for the simulation of flexibilities activation.

**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](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.

**Duration:** The research fellowship(s) will have a duration of 12 months. It's expected to begin on 11/2024. The research fellowship is not renewable.

**Monthly maintenance allowance:** the amount of the monthly maintenance allowance is €1801, 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. Filipe Quintal, and 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 30 until November 13, 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;
- iv) Motivation letter.
- v) Declaration on honour that the applicant does not exceed with this contract an accumulated period of three years in this type of fellowship, continuously or with interruptions, within the technological and scientific system, and that the research work that led to the PhD degree was carried out in a different entity from the host institution of the fellowship.

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