

## CALL FOR GRANT APPLICATIONS (AE2023-0379)

INESC TEC is now accepting grant applications to award 1 Post Doctoral Research Grant (BIPD) on the scope ENFIELD with reference 101120657 funded by the European Commission under the Horizon Europe program for the period 2021-2027.

### 1. GRANT DESCRIPTION

**Type of grant:** Post Doctoral Research Grant (BIPD)

**General scientific area:** ENGINEERING, MATHEMATICS, COMPUTER SCIENCE

**Scientific subarea:** Electrical engineering, Applied mathematics, Digital systems

**Grant duration:** 12 months, starting on 2023-11-07, with the possibility of being renewed until the end of the project.

**Scientific advisor:** Ricardo Jorge Bessa

**Workplace:** INESC TEC, Porto, Portugal

**Maintenance stipend:** € 1741,00, [according to the table of monthly maintenance stipend for FCT grants](#), paid via bank transfer. Grant holders may be awarded potential supplements, according to a quarterly evaluation process (Articles 19, 21 and 22 of the [Regulations for Grants of INESC TEC](#) and Annex II), up to a maximum limit of 50% of the monthly maintenance stipend.

INESC TEC supports costs with registration, enrolment or tuition fees, during the grant duration, under the terms established in the internal document: "[Payment of Tuition fees to grant holders](#)".

The grant holder will benefit from health insurance, supported by INESC TEC.

### 2. OBJECTIVES:

The ENFIELD Project will create a unique European Centre of Excellence that excels the fundamental research in the pillars of Adaptive, Green, Human-Centric, and Trustworthy AI that are new, strategic and of paramount importance to successful AI development, deployment, and acceptance in Europe. It will further advance the research within verticals of healthcare, energy, manufacturing and space by attracting the best talents, technologies and resources from world-class research and industry players in Europe and by carrying out top-level research activities in synchronization with industry challenges to reinforce a competitive EU position in AI and create significant socio-economic impact for the benefit of European citizens and businesses.

The main objectives of the Fellowship are:

- 1) Combine physics-based knowledge with AI to increase interpretability and sample efficiency of modern AI algorithms.
- 2) Develop and test autonomous trustworthy AI agents for the growing number of distributed energy resources (and edge control devices) in electrical grids, such as storage and electric vehicles.

### 3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- 1) Hybridization of physics-based modelling and AI to create decision-support models for human operators under forecast uncertainty.
- 2) Distributed learning algorithms and coordination strategies to achieve a global goal where, for instance, aspects such as energy consumption (green AI) is covered by testing their implementation in edge devices.

- 3) Validate the developed methodologies on real data and different use cases focused on energy transition.
- 4) Dissemination of the work in international journals and/or conferences

#### 4. REQUIRED PROFILE:

##### Admission requirements:

PhD degree in: Applied Mathematics; Physics; Computer Science; Electrical and Computer Engineering; Industrial Engineering or similar

The PhD degree must have been obtained within the three years prior to the date of submission of the application and the research work leading to the award must have been carried out at a host entity other than INESC TEC.

##### Preference factors:

- Experience in applying reinforcement learning algorithms to engineering problems
- Knowledge or experience of energy systems problems

##### Minimum requirements:

- Past experience with supervised and reinforcement learning
- Python programming skills
- A minimum of 2 publications in Q1 journals

#### 5. EVALUATION OF APPLICATIONS AND SELECTION PROCESS:

**Selection criteria and corresponding valuation:** the first phase comprises the Academic Evaluation (AC), based on the criteria referred to in Article 12 of the [Regulations for Grants of INESC TEC](#), while the second phase comprehends the Individual Interview (EI). All factors are evaluated on a scale of 0 to 100, taking into account the applicants' merit, suitability and conformity with the preference factors.

The weight of the AC factors are as follows: Academic Qualifications (FA, 50%), Scientific Publications (PC, 20%), Experience (EX, 20%) and Motivation Letter (CM, 10%).

Candidates who score less than 50 points in the AC average will be considered excluded on absolute merit. The top five candidates approved on absolute merit will be qualified for the individual interview. The Final Grade (CF) is obtained by the weighted average of AC (70%) and EI (30%).

##### The Selection Jury is composed of the following members:

- President of the Jury: Ricardo Jorge Bessa
- Full member: Jorge Correia Pereira
- Full member: Carla Silva Gonçalves
- Substitute member: Manuel Matos

**Release of results and prior hearing:** the results of the selection process, as well as the terms and procedures for prior hearing, will be released to the applicants by email, under the terms referred to in Article 13 of the Regulations for Studentships and Fellowships of INESC TEC.

#### 6. FORMALISATION OF APPLICATIONS:

##### Application Documents:

1. Motivation letter;
2. Curriculum Vitae (must include the list of previous fellowships, their type, beginning and end dates, funding entities and host institutions);
3. Certificate or diploma degree dully recognised in Portugal;
  - Documents proving the awarding of academic degrees and diplomas, or the according recognition - in cases of academic degrees or diplomas granted by a foreign higher education institution - can be dismissed in the application process, and replaced by the applicant's declaration of honour, with the verification of said condition taking place during the grant's hiring stage. The submission of

the certificate is mandatory when signing the contract.

- Academic degrees or diplomas awarded by a foreign higher education institution require an authentication by a Portuguese higher education institution, and the corresponding registration on the DGES platform, in conformity with Decree-Law no. 66/2018, of August 16, and Ordinance no. 33/2019, of January 25. More information available on the website <https://www.dges.gov.pt/pt/pagina/reconhecimento?plid=374>

4. Documental evidence to support the country of residence, residence permit or other legally equivalent document, in cases where the applicant is a foreigner or non-resident in Portugal - valid until the beginning of the grant.
5. Other supporting documents relevant to the final assessment.

Failure to deliver the required documents within the 90-day period after the date of the notice of the conditional awarding of the grant implies its cancellation.

**Application period:** From 2023-09-28 to 2023-10-20

**Submission of applications:** the application will be formalised by submitting the form available in the *Work With Us* section of INESC TEC website.

## 7. BINDING LEGISLATION AND REGULATION

The hiring process shall comply with the current legislation regarding the Research Grant Holder Statute, approved by Law no. 40/2004 of August 18, in its current wording, as well as by the [Regulations for Grants of INESC TEC](#) and for [FCT Grants Regulation in force](#).

For more information, please check the [Regulations for Grants of INESC TEC](#) and relevant annexes at [www.inesctec.pt/bolsas](http://www.inesctec.pt/bolsas)



Funded by the  
European Union