

CALL FOR GRANT APPLICATIONS (AE2025-0483)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the ATE funded by IAPMEI with reference 56 Co-financed by Component 5 - Capitalization and Business Innovation, integrated in the Resilience Dimension of the Recovery and Resilience Plan within the scope of the Recovery and Resilience Mechanism (MRR) of the European Union (EU), framed in the Next Generation EU, for the period 2021 - 2026.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: ENGINEERING

Scientific subarea: Electrical engineering

Area of Work: Electrical Engineering - Electricity Markets

Grant duration: 7 months, starting on 2025-12-01.

Scientific advisor: Tiago André Soares

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1040.98, [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:

- Develop advanced skills in Explainable Artificial Intelligence (XAI) applied to the optimal management of energy communities;
- Support the development of an intelligent Digital Twin based on Generative AI (GenAI) models, capable of interpreting and justifying recommendations for decision support;
- Promote the integration of real-time data and the transparent interpretation of predictions and recommendations produced by Machine Learning and Large Language Models (LLMs);
- Contribute to enhancing trust and usability in energy decision-support systems through the application of XAI techniques;
- Consolidate research, programming, and scientific communication skills, culminating in the production of technical and scientific documentation related to the grant's outcomes.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The increasing digitalisation and decentralisation of the energy system have driven the development of intelligent decision-support tools capable of integrating real-time data and optimising the operation of energy communities. In this context, Digital Twins are emerging as interactive digital platforms that replicate the behaviour of physical systems, enabling the simulation, forecasting, and optimisation of energy operations. The integration of Generative AI (GenAI) models and Explainable AI (XAI) methods is essential to ensure that the recommendations produced by these systems are not only effective but also transparent, interpretable, and trustworthy for different types of users.

The main activities planned include:

- Studying and reviewing the state of the art in Explainable AI applied to energy systems, Digital Twins, and generative models;
- Developing and integrating XAI modules that explain, in an accessible manner and adapted to the user's level of literacy, the recommendations generated by the system;
- Implementing and fine-tuning generative models and LLMs, enhancing the system's ability to generate automated responses and contextualised recommendations;
- Designing interactive and intuitive visualisations, enabling the presentation of results and explanations with different levels of detail (from technical to non-specialised);
- Testing and validating the system's usability, robustness, and transparency, using real data and representative case studies;
- Preparing technical documentation and scientific reports, as well as contributing to the dissemination of results through scientific papers and presentations.

4. REQUIRED PROFILE:

Admission requirements:

Electrotechnical Engineering or similar

The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

Preference factors:

- Experience in Artificial Intelligence, with a focus on Explainable AI (XAI) and Machine Learning;
- Knowledge and experience in Generative AI (GenAI) and Large Language Models (LLMs);
- Experience in energy systems, particularly in modelling, optimisation, and energy community management;
- Programming skills in Python and experience with AI frameworks (such as TensorFlow, PyTorch, or similar);
- Experience in developing interactive interfaces and data visualisation tools.

Minimum requirements:

- Basic knowledge of Artificial Intelligence and Machine Learning;
- Fundamental understanding of Explainable AI (XAI) and/or Generative AI models (GenAI, LLMs);
- Programming skills in Python, including the use of scientific and AI libraries (e.g., NumPy, Pandas, TensorFlow, PyTorch);
- Fluency in English (written and spoken);
- Strong analytical and problem-solving skills, with an orientation towards applied research work.

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, 10%), Experience (EX, 30%) 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 (90%) and EI (10%).

DISABILITY INCENTIVE

Candidates who present a degree of disability equal to or greater than 90% will benefit from an incentive (20) in the score of the CV Assessment.

Candidates who present a degree of disability equal to or greater than 60% and less than 90% will also benefit from

an incentive (10) in the score of the CV Assessment.

Said score may, in these cases, exceed 100 points.

Candidates must demonstrate the degree of disability during the application, namely through the submission of the Multi-Purpose Medical Certificate of Disability, issued in accordance with Decree-Law no. 202/96, of October 23 - currently in effect.

Candidates must declare, in the application form, the type of disability used throughout the selection process, in order to proceed with the required adaptations.

The Selection Jury is composed of the following members:

President of the Jury: Tiago André Soares

Full member: José Villar

Full member: Tiago Manuel Campelos

Substitute member: Ricardo Jorge Bessa

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;
4. Proof of enrollment in a degree awarding study cycle or in a non degree awarding Higher Education program.
 - The proof of enrollment may be presented just during the grant hiring stage.
5. Signed declaration stating the infringement of the grant holder's duties (article 14, no. 4)
6. 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.
7. 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 2025-10-16 to 2025-10-29

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



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