

## CALL FOR GRANT APPLICATIONS (AE2023-0104)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the ATE funded by IAPMEI, 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:** COMPUTER SCIENCE

**Scientific subarea:** Informatics

**Grant duration:** 12 months, starting on 2023-04-17, with the possibility of being renewed until the end of the project.

**Scientific advisor:** João Marco

**Workplace:** INESC TEC, Braga, Portugal

**Maintenance stipend:** € 1199,64, according to the table of monthly maintenance stipend for FCT grants ([https://www.fct.pt/wp-content/uploads/2023/02/Tabela-de-Valores-SMM\\_2023.pdf](https://www.fct.pt/wp-content/uploads/2023/02/Tabela-de-Valores-SMM_2023.pdf)), 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:

This grant is provided in the scope of the project Aliança para a transição Energética (Alliance for the Energy Transition) where a multi-tenant, cloud-based solution to enable an integrated set of cross-domain, interoperable digital services with data from several domains will be design, while allowing a simple instantiation for distinct stakeholders along the energy value-chain.

The recent growth in the offer of network equipment supporting data plane programmability has fostered the development of strategies for reducing the energy consumption of communication infrastructures. In particular, the already established Software-Defined Networks (SDN) support the development of solutions aimed at data centres and wireless networks. However, despite accounting for significant global energy consumption, WANs have received reduced attention from academia and industry.

Considering this scenario, the main objective of the work proposed in this grant is to explore new technologies and techniques towards the design and development of energy-efficient solutions for geographically distributed networks. In particular, technologies supporting SDN, programmable networks and energy flexibility will be explored as strategic components of the proposed research.

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

- Survey and study strategies for energy efficiency in different types of communication networks;
- Study and exploration of SDN support technologies;
- Study and exploration of programmable data planes, in particular, supported by the P4 language;
- Study and exploration of technologies and APIs supporting energy flexibility;

- Design and development of solutions for energy efficiency in WAN;
- Design and development of test scenarios for new solutions for energy efficiency in WAN;
- Writing scientific papers towards the publication of obtained results.

#### 4. REQUIRED PROFILE:

##### Admission requirements:

- Be enrolled in a doctoral programme in computer science or informatics engineering.

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 Computer Networking; Knowledge about SDN; Knowledge about P4 language; Experience in the production of technical reports and scientific papers.

##### Minimum requirements:

- Experience with NS3 simulation environments;
- Knowledge about energy models for network equipment, e.g., ECOFEN;
- Knowledge of distributed systems;
- Knowledge of energy flexibility;
- Knowledge of development in Python, Java and C languages;
- Proficiency in English and Portuguese languages.

#### 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, 60%), Scientific Publications (PC, 10%), 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 (80%) and EI (20%).

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

President of the Jury: Fábio André Coelho  
Full member: João Marco  
Full member: António Luís Sousa  
Substitute member: Ricardo Pereira Vilaça

**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 fully 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. 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 2023-03-15 to 2023-03-28

**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)

