CALL FOR GRANT APPLICATIONS

(AE2026-0150)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the Multiannual Funding of R&D Units 2025-2029, with the reference UID/50014/2025, Funded by national funds through the Portuguese Foundation for Science and Technology (FCT), I.P.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: COMPUTER SCIENCE

Scientific subarea: Informatics

Area of Work: Distributed Systems

Grant duration: 6 months, starting on 2026-07-01, with the possibility of being renewed until the end of the project.

Scientific advisor: Ana Nunes Alonso

Workplace: Braga

Maintenance stipend: € 1359.64, **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:

This grant supports the design and implementation of distributed protocols. Objectives are to:

- Broaden knowledge in this grant's specific scientific area beyond the state-of-the-art;

- Identify and select appropriate methodology for the work at hand;

- Develop research skills by applying the selected methodology;

- Critically assess the conducted research and its results.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

Large-scale distributed systems form the backbone of modern cloud computing infrastructures and data-intensive applications. The pursuit of algorithms capable of dynamically self-adapting to variations in network conditions, workload, and other environmental factors has been a relevant line of research. Existing adaptation approaches — from dynamic parameterization at runtime to algorithm switching — are inherently limited in the space of alternatives they can explore, as correctness must be guaranteed separately for each configuration. Planned activities include:

- Design and formalization of a generalized framework that decomposes distributed algorithms into independently programmable structural planes, enabling modular adaptation with correctness preservation.

- Study of correctness-by-construction properties within the proposed framework, identifying invariants and structural constraints that bound the space of valid adaptations.

- Development of mechanisms for optimal algorithm selection based on runtime factors such as network topology, application workload, and behavioral characteristics of the system.

- Investigation of AI agent-based and optimizer-driven approaches to explore the adaptation space defined by the framework.

- Evaluation of the framework's scalability and generality by mapping a diverse set of distributed algorithms onto the proposed model.

- Writing a doctoral thesis in the context of the developed work.

- Writing an activity report regarding the grant.

4. REQUIRED PROFILE:

Admission requirements:

- Enrollment in a PhD program in Computer Science or a related field.
The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

Preference factors:
- Prior experience with distributed systems frameworks or middleware (e.g., BFT-SMaRt, ZooKeeper, Paxos/Raft), demonstrated through academic or professional projects;

- Familiarity with adaptation models in distributed algorithms, including dynamic parameterization or algorithm switching at runtime.

Minimum requirements:
- Knowledgeable in Distributed Systems;
- Solid knowledge in consensus, replication or fault tolerance algorithms, demonstrated through academic or professional projects.

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 (80%) and EI (20%).

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: Ana Nunes Alonso
Full member: José Orlando Pereira
Full member: Fábio André Coelho
Substitute member: João Tiago Paulo

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 2026-05-21 to 2026-06-03

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