

CALL FOR GRANT APPLICATIONS

(AE2026-0140)

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: Computer Systems

Area of Work: Multi-agent Systems

Grant duration: 6 months, starting on 2026-07-01, with the possibility of being renewed for a maximum term of one year, in cases where the grant has been awarded to students who are enrolled in non-award courses, or up to two years, in the cases of students enrolled in a master's degree.

Scientific advisor: Davide Rua Carneiro

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1090.98, [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:

- Broaden knowledge of the state of the art in the specific scientific area of the fellowship;
- Identify and select the methods appropriate to the study in question;
- Develop research skills through the application of the selected methods;
- Exercise critical thinking in the evaluation of the research process and the results obtained.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The fellowship aims to investigate, develop and validate a knowledge graph-based approach to support the memory, organisation and visualisation of long conversations in multi-agent systems based on language models. The work will focus on the design of a conversational memory layer structured as a graph, capable of representing topics, entities, decisions, objectives, constraints, open questions and relationships between different parts of the conversation. This layer will be explored both as a context retrieval mechanism for agents with limited context windows and as a basis for new forms of interaction and visualisation of the evolution of the conversation, enabling users to understand, navigate and resume long and complex conversations more effectively.

Memory architectures for conversational agents, techniques for the incremental construction of graphs from dialogue, mechanisms for retrieving relevant subgraphs to support response generation, and forms of interactive visualisation of the thematic and semantic structure of the conversation will be studied. The work will include an experimental and prototyping component, with evaluation in realistic long-conversation scenarios, measuring the quality of context retrieval, response consistency, reduction of dependency on the context window, usefulness of the visualisation, and user experience.

Specifically, the main activities to be carried out by the fellowship holder are:

- Study the state of the art in multi-agent systems based on language models, memory mechanisms for conversational agents, GraphRAG, conversational knowledge graphs, and visual interfaces for exploring long conversations.
- Define a conceptual model for representing conversations as a graph, including node types, relationships, temporal attributes, information provenance, and update mechanisms throughout the interaction.
- Design a multi-agent architecture for the construction, maintenance and use of the conversational graph, including specialised agents for information extraction, graph updating, detection of relationships between topics, context retrieval, and response generation.
- Develop graph-based short-term memory mechanisms capable of selecting relevant subgraphs and converting them into structured context for models with reduced context windows.
- Explore graph-based forms of visualisation and interaction, allowing users to navigate topics, decisions, open questions, dependencies and semantic relationships between different moments of the conversation.
- Create a functional prototype that integrates the conversational graph layer with a multi-agent system based on language models.
- Evaluate the prototype in long and complex conversation scenarios, comparing the proposed approach with alternative strategies such as sliding-window context, recurrent summarisation, or simple vector retrieval.
- Analyse the results obtained in terms of response quality, conversational consistency, ability to retrieve older information, efficiency in the use of context, clarity of the visualisation, and perceived usefulness for the user.
- Systematise the results of the work, producing technical documentation, evaluation reports and, where applicable, scientific contributions in the form of papers, demonstrations or reusable resources.

4. REQUIRED PROFILE:

Admission requirements:

Bachelor's degree in Computer Engineering, Information Systems, 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:

- Fluency in Portuguese and english.
- Experience in the development and evaluation of memory management approaches in multi-agent systems.

Minimum requirements:

Bachelor's degree final grade above 12.

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, 0%), Experience (EX, 30%) and Motivation Letter (CM, 20%).

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: Davide Rua Carneiro

Full member: Hugo Miguel Ferreira

Full member: Carla Pereira

Substitute member: António Lucas Soares

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 2026-05-14 to 2026-05-27

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

