

CALL FOR GRANT APPLICATIONS (AE2023-0499)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) on the scope A-IQ Ready with reference 101096658 funded by the European Commission under the Horizon Europe program for the period 2021-2027.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: COMPUTER SCIENCE

Scientific subarea: Digital systems

Area of Work: Computing, Electronics and Digital Systems

Grant duration: 11 months, starting on 2024-02-01 with the possibility of being renewed for a maximum term of two years, in the cases of students enrolled in a master's degree.

Scientific advisor: João Bispo

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 930,98, [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:

- Adaptation or definition of an MLIR dialect that represents structural characteristics of parallel computation for a model in repositories independent of the original repository (i.e., out-of-tree);
- Evaluate the use of the selected dialect for compilation for non-conventional architectures;
- Writing a scientific article in co-authorship to disseminate the results obtained.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Study MLIR compilation flows that allow transforming neural network representations into viable representations for mapping in parallel computing;
- Study the current LLVM / MLIR ecosystem and determine flaws and/or potential re-usable flows that allow creating out-of-tree MLIR dialects;
- Propose methodology for creating out-of-tree dialects;
- Proof-of-concept implementation of MLIR compilation flow using the developed out-of-tree methodology;
- Write the grant activity report.

4. REQUIRED PROFILE:

Admission requirements:

Student in Informatics 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 compilers (parsing, and IRs), and LLVM and/or MLIR ecosystem;
- Basic knowledge of assembly generation;
- Fluency in Portuguese (spoken and written).

Minimum requirements:

- Expert in a programming language;
- Fluency in English (spoken and written).

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, 40%), Scientific Publications (PC, 10%), Experience (EX, 40%) 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: João Bispo
- Full member: Nuno Miguel Paulino
- Full member: João Canas Ferreira
- Substitute member:

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 2023-12-14 to 2023-12-28

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



Funded by the
European Union