CALL FOR GRANT APPLICATIONS
(AE2024-0444)

INESC TEC is now accepting grant applications to award 1 Research Initiation Grant (BII) within the scope of the INESC TEC LA funded by National Funds through FCT - Portuguese Foundation for Science and Technology, I.P., project reference LA/P/0063/2020.

1. GRANT DESCRIPTION

Type of grant: Research Initiation Grant (BII)

General scientific area: MATHEMATICS,COMPUTER SCIENCE

Scientific subarea: Algebra,Programming

Area of Work: Programming theory

Grant duration: 3 months, starting on 2024-11-26, with the possibility of being renewed for a maximum term of one year.

Scientific advisor: José Nuno Oliveira

Workplace: INESC TEC, Braga , Portugal

Maintenance stipend: € 601,12, 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 initiation-to-research grant will address the possibility of bringing the above mentioned techniques closer to each other, with the aim of making the programming process clearer and more calculational: as programs are reified into more efficient versions, evidence of such gains should be produced in parallel and not a posteriori. This will require some investment on the algebra of asymptotic notation (eg. the "big-O" notation) and possibly the use of abstract interpretation in a monadic setting.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

Program quality is usually evaluated along two-axes which often are not in sync. On the one hand, we want programs to be correct and easy to understand, that is, they should clearly behave as intended by the programmer and produce no errors. On the other hand, they should be efficient when applied to the practical situations for which they are intended. Seeking efficiency too early can put correctness at risk, in particular if done in an ad hoc manner. But staying at the abstract level and making no concession concerning performance may be counterproductive too.
Interestingly, the concept underlying the two above mentioned dimensions of programming is the same: that of a mathematical function. In fact, the meaning of a deterministic program is a function; and the theory of algorithmic complexity is based on the analysis of the asymptotic behavior of particular functions measuring complexity. The calculation of recursive functional programs has witnessed great developments in recent decades, giving rise to the so-called 'algebra of programming', thanks to which "correct by construction" and more efficient implementations can be obtained by calculation. But it is not common to analyze the efficiency of these implementations using the same calculational techniques used to infer them.

INESC TEC
Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência
Associação privada sem fins lucrativos declarada de utilidade pública
Pessoa Coletiva 504 441 361 - CRC Porto

Campus da FEUP   T +351 222 094 000
Rua Dr. Roberto Frias   F +351 222 094 050
4200 - 465 Porto   info@inesctec.pt
Portugal   www.inesctec.pt

4. REQUIRED PROFILE:

Admission requirements:
Student in computer 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:
- Good awareness of the project's theme;
- Creativity and critical thinking.

Minimum requirements:
- Current overall grade BSc degree average of 16 or above;
- Background that includes solid knowledge of algebraic programming theory (vulgarly. program calculus).

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, 20%), 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%).

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: José Nuno Oliveira
Full member: Renato Jorge Neves
Full member: Jorge Sousa Pinto
Substitute member: Alcino Cunha

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 not having benefited from any other research fellowship (Article 5, no. 5)
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 2024-10-25 to 2024-11-08

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

INESC TEC
Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência
Associação privada sem fins lucrativos declarada de utilidade pública
Pessoa Coletiva 504 441 361 - CRC Porto

Campus da FEUP   T +351 222 094 000
Rua Dr. Roberto Frias   F +351 222 094 050
4200 - 465 Porto   info@inesctec.pt
Portugal   www.inesctec.pt