

CALL FOR GRANT APPLICATIONS (AE2023-0021)

INESC TEC is now accepting grant applications to award 1 Research Initiation Grant (BII) within the scope of the Plurianual_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: COMPUTER SCIENCE

Scientific subarea:

Grant duration: 6 months, starting on 2023-02-17, with the possibility of being renewed for a maximum term of one year.

Scientific advisor: João Marco

Workplace: INESC TEC, Braga, Portugal

Maintenance stipend: € 486,12, according to the table of monthly maintenance stipend for FCT grants (<http://www.fct.pt/apoios/bolsas/valores>), 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:

Recent developments and the increasing offer of network equipment supporting programmability at the data plane have attracted the attention of researchers from several areas, who see the potential of performance gain by transferring functions, typically implemented at the end-hosts, to the network. In particular, tasks that rely on traffic characterisation and classification tend to achieve promising results since, in this new scenario, developers and administrators of communications infrastructure have more flexible and powerful devices. In this context, the work proposed in this grant has as its main objective to explore the implementation of functions related to intrusion detection systems (IDS) in programmable data planes. As a result, it is intended to develop, in P4, a proof of concept to be deployed and tested on two architectures, namely, BMv2 and Netronome.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Identify and explore IDS-related functions that have the potential for performance enhancements in the data plane;
- Identify challenges related to implementing these functions in constrained scenarios, e.g., Tofino and Netronome;
- Develop proofs of concept in P4 of the selected functions;
- Deploy the functions in programmable data planes;
- Design and deploy test scenarios for the developed solutions;
- Produce scientific reports on the work done and results obtained.

4. REQUIRED PROFILE:

Admission requirements:

- Be enrolled in the Integrated Master in Informatics Engineering or the Master in 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:

- Knowledge of data plane programmable environments; - Knowledge of the P4 programming language; - Knowledge of intrusion detection systems (IDS); - Knowledge of system administration.

Minimum requirements:

- Experience in Information Security;
- Knowledge of Computer Networks;
- Knowledge of Portuguese and English.

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: João Marco
- Full member: António Luís Sousa
- Full member: João Tiago Paulo
- Substitute member: Fábio André Coelho

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 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 2023-01-18 to 2023-01-31

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



Governo da República Portuguesa

FCT

Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA