CALL FOR GRANT APPLICATIONS

(AE2026-0118)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the project DFence, with reference 18408 (NORTE2030-FEDER-01474400) Co-funded by ERDF - European Regional Development Fund through the NORTE 2030 Regional Program under the scope of Portugal 2030.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: ENGINEERING

Scientific subarea: Computer engineering

Area of Work: Computer Vision

Grant duration: 6 months, starting on 2026-06-23, with the possibility of being renewed until the end of the project.

Scientific advisor: Davide Rua Carneiro

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1090.98 or 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:

- To broaden knowledge of the state of the art in the specific scientific field covered by the Scholarship;

- To identify and select the appropriate methods for the study in question;

- To develop research skills through the application of the selected methods;

- To apply critical thinking when evaluating the research process and the results obtained.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

This research fellowship aims to develop computer vision methods for the automatic analysis of images of pastures and soils, collected via satellite, drone, rover and/or devices attached to animals, within the context of the DFence project. The work will focus on creating image processing and annotation pipelines, developing classification, detection and segmentation models, extracting georeferenced indicators on the state of vegetation cover and soil, and integrating these indicators into the Decision Support System to aid the dynamic definition of virtual fences and the sustainable optimisation of grazing. A particularly important aspect is the implementation of self-service approaches, which allow producers to integrate their own image sources (e.g. drones, rovers, cameras) and configure the pipelines to use them, including their participation in the process (e.g. image annotation), so as to enable each implementation to be adapted to specific use cases without requiring technical knowledge.

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

- Define a visual taxonomy of the grazing and soil conditions relevant to DFence: vegetation cover, bare soil, waterlogged soil, degraded areas, overgrazed areas and areas suitable for grazing.

- Build a pipeline for the collection, pre-processing, annotation and management of images from different sources: satellite, drone, rover and/or cameras attached to animals' devices.

- Develop image classification, detection and/or segmentation models to automatically estimate indicators of pasture and soil condition.

- Evaluate Deep Learning models suitable for the problem, including CNNs, semantic segmentation architectures and object detection models. Relevant families of techniques/architectures include YOLO, SSD, CNNs, ResNet, VGGNet, multispectral/hyperspectral analysis and tracking.

- Integrate the model outputs in a format compatible with the data pipeline and the Integrated Decision Support System, producing georeferenced indicators by grazing area.

- Validate the models using field data, environmental sensors and agro-environmental indicators, measuring performance using metrics such as accuracy, F1-score, IoU, mean absolute error, correlation with field measurements and robustness under different lighting conditions, seasons and terrain types.

4. REQUIRED PROFILE:

Admission requirements:

- A 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.

- Experience in computer vision techniques, specifically in self-service approaches focused on technology adoption issues.

- Preference will be given to candidates with a master's degree; candidates with a bachelor's degree will only be considered if no master's degree holders apply, or if those who do apply do not have the required background and/or the experience mentioned above.

Minimum requirements:
A bachelor's degree with an average grade of over 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: Catarina Moreira Marques
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

Programa Regional do Norte

Cofinanciado pela União Europeia

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