CALL FOR GRANT APPLICATIONS

(AE2026-0145)

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: ENGINEERING

Scientific subarea: Industrial engineering

Area of Work: Cutting and Packing Problems

Grant duration: 6 months, starting on 2026-07-01, with the possibility of being renewed until the end of the project.

Scientific advisor: António Galrão Ramos

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 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:

The main objective of this research work is the development of computational decision-support tools for autonomous palletizing problems, with a focus on:

- Designing, developing, and implementing a visual recognition system capable of identifying products (through barcodes, QR codes, or other identification methods), automatically measuring their dimensions (length, width, and height), and detecting visible damage to items, integrated into the existing iiLab infrastructure.

- Developing the processing software that, based on the data captured by the system to be developed, performs product identification, extracts product dimensions, and detects visible damage, providing this information in real time to feed the semi-online palletizing algorithm.

- Developing a set of computational tools for the calculation, visualization, and validation of technical parameters associated with the three-dimensional container packing problem (3D Bin Packing).

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

The work plan includes the following main activities:

Task 1 – Design and Construction of the Visual Recognition, Dimensional Measurement, and Damage Detection

System

This task aims to produce a functional system, integrated into the iiLab demonstrator, capable of automatically identifying, measuring, and inspecting items arriving at the conveyor system, constituting the data input module for the semi-online palletizing process.

Task 2 – Development of the Software for Product Identification, Dimensional Measurement, and Damage Detection

The system aims to provide, in real time, the identification, dimensions, and integrity status of each item entering the system, supplying the semi-online palletizing algorithm with the information required for pallet positioning decision-making, while also enabling the rejection or differentiated handling of damaged items.

Task 3 – Development of Support Applications for the Calculation and Validation of Technical Parameters for the Three-Dimensional Container Packing Problem:

- Packing Parameter Calculation Tools

- 3D Visualization and Validation Interface

- Solution Validation and Benchmarking

4. REQUIRED PROFILE:

Admission requirements:

A degree in Computer Engineering, Electrical Engineering, Computer Science 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:
- Experience in 3D visualisation (libraries such as Three.js, OpenGL, VTK, or similar);

- Advanced knowledge of optimisation algorithms;

- Previous experience with software development for logistics problems;

- In-depth experience in C++ programming;

- Knowledge of version control tools (Git).

Minimum requirements:
- Proven experience in C++ and/or Python programming;
- Experience in developing graphical interfaces in a business or research environment;
- Knowledge of container loading problems;
- Organisational and task management skills;
- Ability to work in a team and high level of autonomy;
- Advanced knowledge of 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, 20%), Experience (EX, 15%) and Motivation Letter (CM, 25%).

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%).

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: António Galrão Ramos
Full member: Farzam Salimi
Full member: Pedro Filipe Rocha
Substitute member: Fábio Silva Moreira

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 2026-05-21 to 2026-06-03

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