

## CALL FOR GRANT APPLICATIONS (AE2025-0193)

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:** ENGINEERING

**Scientific subarea:** Electrical engineering, Computer engineering

**Area of Work:** Industrial Robotics

**Grant duration:** 6 months, starting on 2025-06-09, with the possibility of being renewed until the end of the project.

**Scientific advisor:** João Pedro Souza

**Workplace:** INESC TEC, Porto, Portugal

**Maintenance stipend:** € 651.12, [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:

Carry out a survey of the state of the art in the areas of grasping and bin-picking robotics, with an exclusive focus on learning-based approaches machine and artificial intelligence (AI).

- Identify and select appropriate AI and machine learning (ML) methods for applications in bin-picking and robotic grasping.
- Design and implement an AI-based grasping pipeline using Robot Operating System (ROS) and the NVIDIA Omniverse simulator.
- Validate the results obtained in a simulated environment and, later, in a robot physical.
- Develop critical thinking in the analysis of the research process and results experimental.

### 3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Prepare a comprehensive literature review on robotic grasping and binpicking techniques with exclusive use of machine learning and intelligence artificial.
- Develop a grasping pipeline integrated with ROS, aimed at tasks of bin-picking with support for AI algorithms.
- Acquire practical skills in using the Omniverse simulator, focusing on simulation of robots and evaluation of grasping algorithms.
- Perform experimental tests in a simulated environment and with a physical robot, whenever

possible.

- Write the scholarship activity report, documenting developments and results achieved.
- Contribute to projects that require grasping activities in robots.
- Prepare and submit a scientific paper to a relevant conference or journal in the robotics or AI area

#### 4. REQUIRED PROFILE:

##### Admission requirements:

Bachelor's Degree in Electrical and Computer Engineering or similar areas

The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

##### Preference factors:

430 / 5 000

Preference will be given to candidates who demonstrate:

- Participation in extracurricular activities related to robotics, automation or similar technological areas;
- Knowledge of Artificial Intelligence frameworks (such as TensorFlow, PyTorch, etc.);
- Experience with the Robot Operating System (ROS);
- Knowledge of computer vision;
- Experience with NVIDIA tools such as CUDA, Omniverse or Isaac Yes;

##### Minimum requirements:

Enrollment in the Master's course in Electrical Engineering, Engineering Information Technology or related areas;

- Experience in programming in C/C++ and/or Python languages;
- Familiarity with machine learning models and frameworks (machine learning).

#### 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, 45%), Scientific Publications (PC, 5%), Experience (EX, 45%) and Motivation Letter (CM, 5%).

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: João Pedro Souza  
Full member: Manuel Santos Silva  
Full member: Luís Freitas Rocha  
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 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 2025-05-02 to 2025-05-15

**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](http://www.inesctec.pt/bolsas)

