

CALL FOR GRANT APPLICATIONS (AE2024-0070)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the SENTINEL funded by National Funds through FCT - Portuguese Foundation for Science and Technology, I.P., project reference 2022.15481.MIT.

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: ENGINEERING

Scientific subarea: Electrical engineering

Area of Work: Robotics

Grant duration: 9 months 1 day, starting on 2024-03-15, with the possibility of being renewed until the end of the project.

Scientific advisor: Ana Cristina Pires

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 990,98, [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 scholarship falls within the scope of the SENTINEL-Orb project financed by the MIT Portugal and FCT program. The project deals with an exploratory technology focused on developing a Smart Orb (small sphere) that will be able to fly, navigate, and be able to map. SENTINEL-Orb aims to be a service robot for assistance and cooperation, supporting extravehicular activity (EVA) on the Moon, in outer space and in spacewalks carried out by astronauts. The robot developed under this project will be tested in a microgravity environment during several parabolic flights with the support of the National Research Council of Canada. The objectives of this project are threefold: (1) miniaturize and develop a robotic system based on the UX-1Neo for Space; (2) integrate sensors and provide the vehicle with the ability to fly in a stabilized manner; (3) carry out the development of space maneuvers in a microgravity environment.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Conduct a survey of requirements for the development of a spherical robotic platform capable of stable flight in microgravity;
- Presentation of a conceptual model, which may include several solutions, to contribute to the development of an aerial robotic platform;
- Carry out the development of a mechanical structure for 3D production;
- Project implementation;
- Support in project management, writing technical reports and scientific publications;
- Ability to work in international and multidisciplinary teams;
- Exercise a critical spirit in evaluating the research process and the results obtained.

4. REQUIRED PROFILE:

Admission requirements:

Degree in electrical 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:

- Student in the second year of their Master's Degree and in the process of developing their dissertation.
- Previous experience in the sensory area, data processing, 3D printing, vision, STM32 microcontroller and its applications, mastery of SOLIDWORKS and/or Autodesk Inventor Professional (other software will also be valued).
- Development of robotic platforms (hardware and software), AI and deep learning, robotic technologies and autonomous vehicles (e.g. AGV).
- Previous knowledge of using the operating system and FreeRTOS framework.
- Involvement in scientific or business projects, and writing technical-scientific or academic documents.

Minimum requirements:

Degree in electrical engineering

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, 30%), Scientific Publications (PC, 10%), Experience (EX, 30%) and Motivation Letter (CM, 30%).

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: Ana Cristina Pires

Full member: Hugo Miguel Silva

Full member: André Dias

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 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 2024-02-15 to 2024-02-28

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