

CALL FOR 1 RESEARCH GRANT FOR A BACHELOR WITHIN THE SCOPE OF THE PROJECT RUGGED | Refª RUGGED-BIL-1

Application period: 01-Jun-2026 to 16-Jun-2026

The Institute of Systems and Robotics of the University of Coimbra (ISR-UC) opens a call for applications for one (1) Research Grant for a Bachelor (BIL) **enrolled in a Master degree or a non-degree course** within the scope of the RUGGED project, with the reference 2023.16314.ICDT (<https://doi.org/10.54499/2023.16314.ICDT>), funded by the Portuguese Foundation for Science and Technology (FCT), I.P., in the following conditions:

Type of Grant: Research Grant for a Bachelor (*Bolsa de Investigação para Licenciado*), in accordance with article 6 of the Regulation for Research Fellowships of the *Fundação para a Ciência e a Tecnologia* (FCT), I.P.

Number of positions: 1

Scientific Area: Electrical and Computer Engineering, Robotics, Mechanical Engineering, Computer Science, or a related area.

Admission requirements: The candidate must hold a Bachelor degree and must be a student enrolled in a Master degree or a non-degree course (*curso não conferente de grau*), preferably in one of the scientific areas presented above.

“Courses not conferring an academic degree” must be related to the research fellowship’s activity type. “Courses not conferring an academic degree” are the courses referred to in article 4, paragraph 3, letter e) of Decree-Law no. 74/2006, of 24 March, in the current wording, provided that they are developed in association or cooperation between the higher education institution and one or more R&D units, in accordance with the provisions of article 3, paragraph e) of the FCT Regulation for Research Fellowships.

Work plan: The selected candidate will support the RUGGED research team by contributing to the development, integration, and validation of perception and software components for robust robotic operation in extreme agroforestry and firefighting environments. Specifically, the candidate will be responsible for:

- Development and maintenance of sensor drivers and data acquisition pipelines for multimodal robotic platforms, ensuring reliable communication, synchronization, and recording of data from heterogeneous sensing devices;
- Integration and testing of sensors including LiDAR, RADAR, RGB/RGB-D cameras, different camera modalities (e.g. event-based, multispectral, RGB-D), IMUs, GNSS-RTK systems, and other redundant 3D sensing technologies used within the RUGGED platforms;

- Development and evaluation of image segmentation methods for scene understanding, obstacle identification, and semantic perception in outdoor and degraded visibility conditions;
- Support for the development of metric-semantic mapping pipelines combining geometric and semantic information for environment representation and robotic navigation;
- Participation in the simultaneous acquisition, calibration, and comparison of redundant 3D sensing systems to evaluate robustness, reliability, and sensing performance under challenging environmental conditions;
- Integration of perception and sensing modules into ROS-based robotic software architectures, ensuring interoperability between low-level perception, mapping, and navigation components;
- Support for software integration, debugging, and validation activities across the different subsystems of the RUGGED robotic platforms;
- Participation in laboratory and field experiments, including sensor calibration, data collection, system benchmarking, and validation of perception and mapping performance in realistic outdoor environments;
- Support for technical documentation, software maintenance, and preparation of dissemination materials related to the developed perception and integration components.

Regime: The attribution of the fellowship does not generate or entitle a relation of a legal-labour nature, and the fellowship is undertaken in an exclusive dedication regime. The fellowship holder is awarded the Fellowship Statute of the ISR-UC, in its current wording, according to the Research Fellowship Holder Statute, and according to the Regulation for Research Fellowships of the Fundação para a Ciência e a Tecnologia, I.P., both in their current wording.

Regulation: This call process shall comply with the applicable national legislation and regulations governing research grants, namely the Research Fellowship Holder Statute (*Estatuto do Bolseiro de Investigação*), approved by Law no. 40/2004 of 18 August, in its current wording, and the Regulation of Research Fellowships of the FCT (*Regulamento de Bolsas de Investigação*) in force whenever the grant is directly or indirectly funded by FCT, or, when applicable, the ISR-UC Regulation of Research Fellowships approved by FCT.

Location: The works will take place at the Instituto de Sistemas e Robótica – Universidade de Coimbra.

Duration: 6 months, possibly **renewable**, by agreement between both parties. In accordance with article 6, paragraph 4, letter a) and b) of the FCT Regulation for Research Fellowships, the grant cannot exceed a period of 12 months for a candidate enrolled in a non-degree course or 24 months for a candidate enrolled in Master.

Scientific orientation: Professor Paulo Peixoto and Professor David Portugal.

Financial conditions: The amount of the fellowship is **€ 1090.98**, in accordance with the table of values of the scholarships awarded directly or indirectly by FCT in Portugal (<https://www.fct.pt/wp-content/uploads/2026/03/Tabela-de-Valores-SMM-2026.pdf>), to be paid by bank transfer, plus personal accidents insurance and social security (Seguro Social Voluntário, first level contributions) if the applicant chooses to subscribe.

Selection and attribution criteria: The selection methods to be used will be **a) Curricular Evaluation** ($0.3*a1 + 0.4*a2 + 0.3*a3$) with a valuation of **100%**. If the Jury deems it necessary, an interview may be carried out with the candidates placed in the first positions according to the ranking resulting from the above criteria. In this case, the final score will include the **a) Curricular Evaluation** ($0.3*a1 + 0.4*a2 + 0.3*a3$) with a valuation of 70% and the **b) Interview** ($0.5*b1 + 0.5*b2$) with a valuation of 30%.

a) Curricular Evaluation

Criterion a1. Absolute merit of the candidate, considering his/her performance in the bachelor's degree (**30%**);

Criterion a2. Knowledge of tools and methodologies related to mobile robotics, multimodal perception, image segmentation, 3D mapping, and sensor integration—demonstrated through coursework or participation in R&D activities involving robotic perception, autonomous systems, computer vision, LiDAR and RADAR processing, or outdoor robotic platforms. Familiarity with acquisition and synchronization of heterogeneous sensor data and evaluation of redundant sensing systems will be highly valued (**40%**);

Criterion a3. Knowledge of Python and/or C++ programming languages, Linux-based software development, and robotics software frameworks such as ROS. Familiarity with OpenCV, Point Cloud Library (PCL), sensor drivers, data acquisition pipelines, and integration of LiDAR, RDAR, RGB/RGB-D, event-based, GNSS or inertial sensing systems will be considered an asset (**30%**).

b) Interview (should it occur)

Criterion b1. Motivation to work on the project (**50%**);

Criterion b2. Competence in the oral response to questions on the selection criteria subjects. Appropriate spoken English skills will be valued (**50%**).

Jury responsible for selection:

- President: Professor Doctor Paulo José Monteiro Peixoto;
- 1st Member: Professor Doctor David Bina Siassipour Portugal;
- 2nd Member: Professor Doctor João Luís Ruivo Carvalho Paulo.

Formalization of application: Applications must be formalized by sending the following elements:

- (1) Letter of motivation — **mandatory**;
- (2) Curriculum Vitae (CV) — **mandatory**;

(3) Copy of the Certificate of Qualifications (Bachelor degree) with the final average — **mandatory**;

(4) Proof of enrollment in a Master or a non-degree course at a Portuguese higher education institution, or a Declaration on the Honor by the candidate that he/she will enroll in the course until the date of contract signature — **mandatory**;

(5) A declaration under honour by the candidate listing any fellowships received, their type and duration — **mandatory if the candidate has received any fellowships in Portugal**.

Applicants with academic degrees obtained abroad will be required to present a Certificate of Recognition in accordance with applicable law. This document is mandatory only in the contractualization phase.

Application submission: The applications shall be sent by email to gustavo.bongiovi@isr.uc.pt with CC: davidbsp@isr.uc.pt and peixoto@isr.uc.pt specifying in the subject: Ref.^a RUGGED-BIL-1.

Submission of applications: The application process is open from **01-June-2026 until 16-June-2026**.

Form of publicity / notification of the results: The results of the evaluation will be publicized at the ISR-UC website through a list ordered by the final grade obtained, with the candidates being notified by email. After the dissemination of the results through email, the candidates must consider themselves, from the outset, notified to, if they wish, express themselves in a prior hearing within a maximum period of 10 working days after that date. At the end of this period, the selected candidate must consider himself summoned to start the grant.

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