(BL28/2025-IST-ID)

Research Studentships (for Master students)

Applications are open for 1 Research Studentship, within the framework of project 1801P.01158.1.04 SIPG LAB/ISR with the reference LA/P/0083/2020, financed by national funds through FCT/MCTES (PIDDAC) under the following conditions:

Scientific Area: Automation, Control and Robotics

Admission Requirements: *To be enrolled at an integrated master or a master.*

Workplan: In recent years there has been a significant development in Deep Learning, which has been useful in a quite range of research areas. As there is an increasing number of algorithms proposed in this area, there is also a need to formalize a comparison between the methods that are proposed in given context of application. Towards this goal, it is necessary to design and develop a set of unified tools so that this comparison can be made. Although this type of work already exists in several areas of computer vision, the 3D Point Cloud Registration does not yet have this set of tools, that allows for a fair comparison between algorithms, despite the fact that this area is that, among several others, has been developed more in computer vision, particularly in the last two years.

This scholarship has its main objective to create a benchmarking platform for 3D Point Cloud Registration. The construction of this platform requires a pipeline that mainly includes (i) the creation of correspondences between 3D points and the evaluation of state-of-the-art methods that propose to obtain these correspondences, and (ii) the registration between two Point-Clouds by state-of-the-art methods. Another important aspect will be the unification of the existing datasets so that they can be used directly in any part of the pipeline, without the need for pre-processing.

The pipeline will be publicized and placed on open-source platforms for community use. This scholarship will be supported by two experienced Professors/Researchers in the field and a PhD student.

Python knowledge is desired, as well as attendance in the Computer Vision and Machine Learning (non-exclusive) disciplines.

Examples: Pytorch 3D Library: https://github.com/nicolas-chaulet/torch-points3d

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; FCT Regulation for Research Studentships and Fellowships, available on https://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2019.pdf and https://dre.pt/application/file/a/127230968 .

Workplace: The work will be developed the Institute for Systems and Robotics (ISR) of Instituto Superior under the joint scientific supervision of Prof. Jacinto Nascimento and Prof. João Xavier.

Duration: The research fellowship will have the duration of 10 months with the possibility of extension, up to the maximum of 24 months, including the duration of the initial contract. It's expected to begin in March 2025.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (https://www.fct.pt/wp-content/uploads/2024/02/Tabela-de-Valores-SMM_atualizacao-2024.pdf), the amount of the monthly maintenance allowance is € 990,98, being the payment method by Wire Transfer.

Selection methods: The selection methods will be the following: Curriculum evaluation, individual interview (specifying its conditions), knowledge tests, others), with the respective weight of 60% and 40%, respectively. The jury will select the first five candidates for an interview, based on the curricular assessment.

Composition of the selection Jury: Profs. Jacinto C. Nascimento, João Paulo Costeira and Manuel Marques**.**

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Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision within 15 working days, or an appeal to the Executive Board of IST-ID within 30 working days, both counted from the respective notification

Application deadline and formalization: The call is open from February 27 until March 13, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (https://ist-id.pt/concursos/bolsas/); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at an academic degree course (Master, Integrated Master); v) motivation letter;

Applications must be submitted through the website*: https://welcome.isr.tecnico.ulisboa.pt/opportunities/*