

Post-Doctoral Research Fellowships

Applications are open for 1 Post-Doctoral Research Fellowship, within the framework of **1801P.01158.1.02 LA/P/0083/2020 - ISR - DSOR LAB/ISR** and **1801P.01460.1.02 - DSOR LAB/ISR**, financed by national funds through FCT/MCTES (PIDDAC) under the following conditions:

Scientific Area: Systems Decision and Control

Admission Requirements:

- a) *to hold a PhD degree obtained in the 3 years previously to the submission of the fellowship application;*
- b) *to have carried out the research work that led to the PhD degree in a different entity from the host institution of the fellowship;*
- c) *Not to exceed, with this fellowship contract, including the possible renovations, an accumulated period of 3 years in this type of fellowship, continuously or with interruptions;*
- d) *Not to have previously held a post-doctoral fellowship from IST-ID.*

Workplan: Adaptive Control and Coordination Strategies for Autonomous Maritime Towing Operations

This work plan focuses on developing a control and coordination framework for autonomous maritime towing operations using advanced nonlinear control techniques and machine learning. The goal is to enable robust and precise trajectory tracking of towed platforms carrying sensitive instruments such as side-scan sonars and acoustic arrays, even in unpredictable marine environments.

The approach involves designing control algorithms for both single and multiple autonomous surface crafts (ASCs), ensuring accurate path following, disturbance rejection, and fault tolerance. These algorithms will be tailored to cope with the complexities of towing in dynamic ocean conditions.

Machine learning will be integrated to provide adaptive capabilities, allowing the system to learn from environmental data and adjust control actions in real time. This data-driven enhancement will improve decision-making and overall system robustness.

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 at Institute for Systems and Robotics of the Instituto Superior Técnico, under the scientific supervision of Prof. Carlos Jorge Ferreira Silvestre

Duration: The research fellowship will have a duration of 9 months. It's expected to begin in (July/2025) and may be eventually renewed up to the maximum of 18 months, including the duration of the initial contract.

Monthly maintenance allowance: According to the values for Research Fellowships awarded by FCT in Portugal (<https://www.fct.pt/fct-atualizou-o-valor-das-bolsas-para-2025/>), the amount of the monthly maintenance allowance is €1851, being the payment method by Wire Transfer.



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Selection methods: The selection methods will be the following: *Curriculum evaluation and individual interview*, with the respective weight of *Curriculum evaluation 60%, and individual interview 40%*.

Composition of the selection Jury: Prof. Carlos Silvestre, Prof. Paulo Oliveira, and Prof. Rita Cunha.

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 June 17 until July 1, 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; iv) motivation letter; v) declaration on honour that the applicant does not exceed with this contract an accumulated period of three years in this type of fellowship, continuously or with interruptions, within the technological and scientific system, and that the research work that led to the PhD degree was carried out in a different entity from the host institution of the fellowship.

Applications must be submitted to <https://isr.tecnico.ulisboa.pt/scholarships/>



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