(BL324/2024_IST-ID)

1 Research Studentship for student of a course that does not award an academic degree

Applications are open for 1 Research Studentship for a student of a course that does not award an academic degree, within the framework of project Responsible.AI (Contrato nº 12 - IST-ID) financed by national funds PRR (Plano de Recuperação e Resiliência), through IAPMEI - Agência para a Competitividade e Inovação, under the following conditions:

Scientific Area: Electrical, Computer and Information Engineering

Admission Requirements: To hold a bachelor or a master's degree and be enrolled at a course that does not award an academic degree, at the starting date of the grant contract.

Workplan: This project aims to leverage AI/ML methods to improve the identification, trajectory generation, and control of a high speed ASV (Autonomous Surface Vehicle). These vehicles have a role to play in the monitorization of the ocean, e.g. for environmental observation and climate change mitigation. The setup consists of an instrumented high-speed ASV with an onboard computer and racetrack defined by gates over the water surface. The ultimate goal is to drive the ASV along the racetrack, passing by the gates in order, in the minimal amount of time. The starting point is the current setup, consisting of an ASV identified with classical methods, a trajectory generation module consisting of connecting the gates using Dubbins' paths and a trajectory tracking controller based on backstepping. The student will design and AI/ML methods to improve i) the identification, ii) the trajectory generation, and iii) the controller to extract the best performance out of the ASV without compromising on the robustness of the solutions. One important aspect is to ensure the interpretability of the AI/ML methods. Additionally, the student will conduct empirical studies to test and evaluate the effectiveness of the proposed techniques and the racing solution and submit scientific papers with the experimental results.

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; IST-ID Research Fellowships Regulation, available on https://ist-id.pt/files/sites/43/regulamento-de-bolsas-da-ist_id-2.pdf .

Workplace: The work will be developed at Institute for Systems and Robotics / LARSyS of Instituto Superior Técnico, under the scientific supervision of Doctor David Cabecinhas.

Duration: The research fellowship will have the duration of 12 months. It is expected to begin in February 2025, and it is not renewable.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is € 1259.64€, for holders of a master's degree, or € 990,98, for holders of a bachelor's degree, being the payment method by wire transfer.

Selection methods: The selection methods will be the following: Curriculum evaluation, namely background in the research area defined in the workplan, with the respective weight of 100%.

Composition of the selection Jury: Dr. David Cabecinhas, and Professors José A. R. Santos-Victor and Pedro Batista.

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 January 8 until January 21, 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) official academic degree certificate, where applicable;

iv) proof of enrollment at a course that does not award an academic degree which must be presented at the time of contract signature;

v) motivation letter.

vi) Declaration on honour that the applicant does not exceed with this contract an accumulated period of one year in this type of studentship, continuously or with interruptions.

Applications must be submitted at https://welcome.isr.tecnico.ulisboa.pt/opportunities/