

(BL162/2023-IST-ID)

## Post-Doctoral Research Fellowships

Applications are open for one Post-Doctoral Research Fellowship, within the framework of project/R&D institution (1801P.00984.1.02) LARSYS/ISR (UIDB/50009/2020) - DSOR LAB/ISR), financed by national funds through FCT under the following conditions:

**Scientific Area:** Automation, Control and Robotics

**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: Design and Implementation of Robust Distributed Formation Control for Aerial Vehicles**

The objective of this work plan is the design of distributed formation control for a set of quadrotors subject simultaneously to external disturbances and switching communication topologies. The envisaged controller should incorporate position and attitude control laws for each quadrotor. Both control laws should have a nominal part for trajectory tracking and a robust part that compensates for the dynamic model uncertainties and time-varying external disturbances. The developed controller should guarantee that the thrust force is bounded with respect to the position error by utilizing saturation functions. Finally, the devised solution should be assessed both in simulation and in practice.

**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 Instituto Superior Técnico, under the scientific supervision of Prof. Carlos Jorge Ferreira Silvestre

**Duration:** The research fellowship will have the duration of 6 months. It's expected to begin in 07/2023, and may be eventually renewed up to the maximum of 12 months.

**Monthly maintenance allowance:** According to the values for Research Fellowships awarded by FCT in Portugal (<http://www.fct.pt/apoios/bolsas/valores>), the amount of the monthly maintenance allowance is € 1741, being the payment method by Wire Transfer.

**Selection methods:** The selection methods will be the following: *Curriculum evaluation, individual interview (Curriculum evaluation, individual interview (specifying its conditions), knowledge tests, others)*, with the respective weight of *Curriculum evaluation - 50%, individual interview – 50%*,

**Composition of the selection Jury:** Prof. Carlos Jorge Ferreira Silvestre, Dr. David Alexandre Cabecinhas, and Prof. Rita Maria Mendes de Almeida Correia da 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 May 22 until June 2, 2023.

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 the email: [cjs@isr.tecnico.ulisboa.pt](mailto:cjs@isr.tecnico.ulisboa.pt)