(BL198/2025-IST-ID)

Post-Doctoral Research Fellowships

Applications are open for 1 Research Studentship, within the framework of projects 1801P.01516 – OptSurgAI 2024.07248.IACDC apoiado pela medida "RE-C05-i08.M04 – "Apoiar o lançamento de um programa de projetos de I&D orientado para o desenvolvimento e implementação de sistemas avançados de cibersegurança, inteligência artificial e ciência de dados na administração pública, bem como de um programa de capacitação científica", do Plano de Recuperação e Resiliência – PRR, enquadrado no contrato de financiamento celebrado entre a Estrutura de Missão Recuperar Portugal (EMRP) e a Fundação para a Ciência e a Tecnologia I.P. (FCT), 1801.P0c – MMIST 2024.06929.RESTART, and 1801P.01532, financed by national funds through FCT/MCTES (PIDDAC) - NextGen_101136962 Financed by European funds, under the following conditions:

Scientific Area: Machine Learning, Artificial Intelligence, Signal Processing, and Healthcare Data Analysis

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: Healthcare is moving away from an "one-treatment-fits-all" approach to a patient-centric paradigm. This requires a multi-modal view of the diseases at different levels of granularity: molecular data (e.g, genomics and proteomics) is used as predictive biomarkers; histopathology (WSI) allows the inspection of the tissues at the cellular level, making it possible to analyze their spatial heterogeneity; while imaging techniques convey information about the 2D/3D structure and the overall organ morphology.

As the interest in personalized care grows, the amount of multi-modal data that is being generated creates the ideal environment to capitalize data-centric machine learning approaches. Machine learning will be pivotal in this context, as it can screen massive amounts of data and uncover new patterns faster than humans. However, these developments are hampered by several constraints, such as incomplete/missing modalities, significant differences between modality types, and the longitudinal nature of medical data.

This call seeks a motivated recent PhD to support the development of explainable machine learning/AI approaches to integrate multimodal data, ranging from medical images like radiology or surgical videos, to pathology, genomics, and clinical data. The candidate is expected to handle critical settings with missing data and longitudinal patient evolution. We are recruiting a PhD researcher to work on advanced topics that combine causal learning with generative AI, and data fusion techniques based on graphs.

The candidate will work with various healthcare problems, namely related to oncology, cardiovascular diseases, and minimally invasive surgery, in close collaboration with hospitals and researchers from molecular biology. The work will be carried out at the Computer and Robot Vision Laboratory (https://vislab.isr.tecnico.ulisboa.pt/).

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You will have the opportunity to (co)-supervise MSc and PhD students, be involved in teaching assignments (if desired), as well as be enrolled in the application to national and European funding calls. Additionally, our pre-award office will support your individual applications to funding, towards achieving research independence.

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 VisLab – Institute for Systems and Robotics, LARSyS, and Instituto Superior Técnico, University of Lisbon, under the scientific supervision of Prof. Catarina Barata.

Duration: The research fellowship will have a duration of 12months. It's expected to begin in October/November 2025 and may be eventually renewed up to the maximum of 36 months, including the duration of the initial contract, or until the candidate reaches the 3-year post-PhD limit defined by the admissibility criteria.

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 and is expected to increase annually, being the payment method by wire transfer.

Selection methods: The selection methods will be the following: *Curriculum evaluation, Most Relevant publications, Motivation letter, and individual interview*, with the respective weight of 50%/20%/10%/20%. Eligible candidates must have a PhD degree in Computer Science, Electrical and Computer Engineering, Biomedical Engineering or equivalent.

Composition of the selection Jury: Prof. Catarina Barata, Prof. José Santos-Victor, and Prof. Alexandre Bernardino

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 August 21 until September 20, 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) 3 most representative publications related with the position;

vi) declaration on honor 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.

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