

Research Studentships for PhD students

Applications are open for 2 (two) Research Studentships, within the framework of PREDICT (Probabilistic Real-time Estimation of Discharges Integrated with Cutting-edge Transformers), (LISBOA2030-FEDER-00856400 | 1801P.01563), financed by national funds through FCT/MCTES (PIDDAC) and co-financed by the European Regional Development Fund (FEDER), under the Regional Program Lisboa 2030, under the following conditions:

Scientific Area: Hidráulica, Ambiente e Recursos Hídricos;

Admission Requirements: *To be enrolled in a PhD program.*

Workplan: The candidates will be expected to develop activities associated with the PREDICT Scientific Research & Technological Development Project, namely activities associated with setting up a streamflow forecasting system in Portugal and the advancement of scientific knowledge in machine learning probabilistic hydrological forecasting and decision-making optimized to act on those forecasts. PREDICT is a collaboration between IST, the Portuguese Environment Agency (APA) and the Portuguese Institute of the Sea and the Atmosphere (IPMA) and candidates should expect to work in collaboration with other researchers. The key topics of PREDICT (and the candidate's potential line of research) are:

- Machine learning-based probabilistic hydrological modelling, including calibration, validation, presentation of results and analysis.
- Acquisition, validation, pre-processing and storage of hydrometeorological data.
- Deployment of forecasting systems at scale.
- Optimization of reservoir operations in light of probabilistic forecasts.
- Decision frameworks for binary decisions under uncertainty (e.g., to evacuate or not to evacuate).

The main tasks of the candidate are expected to be:

- Research (literature review and new advancements, including programming).
- Development of scientific skills (e.g., by attending relevant courses).
- Preparation of publications in international peer-reviewed journals and participation in specialized conferences (talks / posters).
- Reporting and representation associated with PREDICT.

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://dre.pt/application/file/a/127230968>.

Workplace: The work will be developed at Instituto Superior Técnico and associated with the CERIS (Civil Engineering Research and Innovation for Sustainability) research center. The scientific supervision will be ensured by Prof. José Pedro Matos.

Duration: The research fellowship(s) will have a duration of 12 months. It's expected to begin in November 2025 and end in June 2028. It may be renewed until a limit of 32 months (June 30, 2028).

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 €1 309,64, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection methods will be the following:

- (50%) analysis of the academic record (M.Sc. grade – 30%, Hydrology and water resources (or equivalent) – 20%).

- (50%) individual interview (presential or online – to be convened with the jury). Programming skills, proficiency in the English language, knowledge about optimization methods, knowledge about dam operations and general interest in the topic, among other hard and soft skills, will be valued.

Composition of the selection Jury:

- Prof. José Pedro Gamito de Saldanha Calado Matos – nº mec. IST151906.
- Prof. Rodrigo De Almada Cardoso Proença de Oliveira – nº mec. IST126343.
- Prof. Filipa Maria Santos Ferreira – nº mec. IST14202.

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 November 5 until November 18, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (<https://ist-id.pt/recursos-humanos/bolseiros/#documentos-relacionados>); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at an academic degree course (PhD); v) motivation letter;

Applications must be submitted to jose.matos@tecnico.ulisboa.pt with gabriela.cunha@tecnico.ulisboa.pt in cc.