

(BL231/2025-IST-ID)

Research Studentships (Master or Integrated Master students)

Applications are open for 1 Research Studentship, within the framework of project SHIFT2DC (Shift to Direct Current), co-financed by the European Commission (GA 101136131), under the following conditions:

Scientific Area: Software Engineering and Information Systems

Admission Requirements:

- a) To be enrolled at an integrated master or a master.*

The candidate must also:

- b) Hold a bachelor's degree in software engineering*
- c) Have very good English written and oral skills.*
- d) Have previous research experience, particularly in the domain of machine-learning for power systems, especially on the development of federated-learning algorithms – experience in developing forecasting algorithms will be highly appreciated.*
- e) Have very good programming skills in programming languages such as Python, JavaScript.*
- f) Have a high- level knowledge of databases and backend/frontend software applications.*
- g) Have very good analytical and critical thinking skills.*

Workplan: SHIFT2DC project aims to propose and implement a top-down application-agnostic approach for the design, simulation, test, validation, and application of both medium (MV) and low voltage (LV) direct current (DC) solutions. Thirty-two partners, including affiliated and associated partners, from twelve countries, will join expertise to develop, test and demonstrate the technical feasibility, cost-benefit, life cycle and environmental impact of the proposed DC solutions in Data centres, Buildings, Industry and Ports across Europe (Germany, France, and Portugal).

The selected candidate will be working in tasks related to the activities to be developed in Portugal, with a particular focus on the port's demonstrator. More precisely:

- a) Development of forecasting algorithms for different related variables, e.g., load demand, renewable production, vessel arrival times. This shall be done using both centralized and federated paradigms.
- b) Research and development of the port digital twin – including the development of software and middleware for the integration of physical assets, and the modeling of virtual assets that exist in ports, such as cranes and vessels.
- c) Contribute to the development of the Energy Management System by developing and integrating advanced optimization algorithms for real-world and real-time demonstration.
- d) Assist the research team in producing reports and scientific presentations/publications.

Workplace: The work will be developed at the Interactive Technologies Institute / LARSyS, under the scientific supervision of Dr. Lucas Pereira. The activities will be developed in the city of Funchal where the demonstration activities are being developed. This is an 100% onsite position.

Duration: The research fellowship(s) will have a duration of 12 months. It's expected to begin on 11/2025. The research fellowship can be renewed up to the maximum of 18 months, including the duration of the initial contract based on the success of the developed tasks, need for subsequent developments, and budget availability.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is € 1040.98, being the payment method by Wire Transfer.

Selection methods: The selection methods will be the following:

- a) Curriculum Vitae evaluation (70%)
- b) Motivation Letter (30%)
- c) Individual Interview (as a tie-break procedure), to be conducted online

Composition of the selection Jury: Dr. Lucas Pereira (President), Prof. Hugo Morais, Prof. Augusto Esteves

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 October 22 until November 4, 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, where applicable;
- iv) Proof of enrollment at an academic degree course (Master, Integrated Master);
- v) Motivation letter;

Applications must be submitted to the email: dina.dionisio@tecnico.ulisboa.pt (cc: lucas.pereira@tecnico.ulisboa.pt) with the subject [SHIFT2DC]: Application to BI-L3

For additional information, please contact Lucas Pereira: lucas.pereira@tecnico.ulisboa.pt with the subject [SHIFT2DC: Inquire on BI-L3]