

(BL144/2022-IST-ID)

### Research Studentships (Master or Integrated Master students)

Applications are open for 1 Research Studentship, within the framework of project nexIK: Exploring the Human-Water-Energy Nexus in Industrial Kitchens, EXPL/CCI-COM/1234/2021, financed by national funds through FCT/MCTES (PIDDAC), under the following conditions:

**Scientific Area:** Electrotechnical Engineering and Informatics Engineering

**Admission Requirements:**

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

*The candidate should also:*

b) *Hold a MSc degree in Informatics Engineering, Electrical and Computer Engineering, Mechanical Engineering or related discipline*

c) *Have good English written and oral skills*

d) *Have very good analytical skills and knowledge of data science and machine learning methods*

e) *Have very good programming skill*

**Workplan:** Industrial kitchens (IKs) use between 5 and 7 times more energy per square meter than other commercial building spaces like office buildings and retail stores. Nevertheless, despite the size and ubiquity of this industry, its role in the global quest for sustainable energy systems is still widely under-explored.

The nexIK project will address this important topic, proposing a new methodology to quantify the interactions between Water, Energy, and Food in IKs. Commonly known as the Water-Energy-Food Nexus (WEFN), the developed methodology will provide a holistic approach to assess the impact of IK activity on the consumption of electricity and water.

To achieve this vision, the project will start by understanding the perceptions of the stakeholders (IK managers and users) about the WEFN, through questionnaires and interviews with IK stakeholders in the city of Lisbon. During this process, two IK will be recruited to collaborate in this project. These two IKs will then be equipped with a set of sensors and metering systems to measure the consumption both of energy and water for 12 consecutive months.

The selected candidate will contribute with several tasks that need to be developed in this phase of the project. More precisely:

- a) Actively participate in the process of deploying the platform in the selected IKs, as well as the data quality assessments.
- b) Conduct research in the topic of data-driven identification of interactions between electric appliances using measurements from electricity consumption and water demand.
- c) Assist the research team in the continuous monitoring of the data collection campaign.
- d) Assist the research team in the production of reports and scientific presentations/publications.

**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 the Interactive Technologies Institute (ITI) of the Laboratory of Robotics and Engineering Systems (LARSyS), under the scientific supervision of Dr. Lucas Pereira.

**Duration:** The research fellowship(s) will have the duration of 6 months. It's expected to begin in 08/2022. The research fellowship is not renewable.

**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 € 875.98, being the payment method an option of the Fellow 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. Rui Castro

**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 July 18 until July 29, 2022.

It is mandatory to formalize applications with the submission of the following documents:

B1 Form – Fellowship application (<https://ist-id.pt/concursos/bolsas/>);

- 1) *Curriculum Vitae*;
- 2) Motivation letter;
- 3) Academic degree certificate, where applicable;
- 4) Proof of enrollment at an academic degree course (Master or Integrated Master);

Applications must be submitted to the email: [nexik@tecnico.ulisboa.pt](mailto:nexik@tecnico.ulisboa.pt) with the subject [nexik: B13]