

Post-Doctoral Research Fellowships

Applications are open for 1 Post-Doctoral Research Fellowship, within the framework of "ATE - Aliança para a Transição Energética", Agenda 56 - Projeto C644914747-00000023 financed by the European and Resilience Plan, under the following conditions:

Scientific Area: Manufacturing and Industrial Management

Admission Requirements:

- a) *to hold a PhD degree obtained in the 3 years previously to the beginning of the fellowship contract;*
- 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: To develop innovative methods and computational models for assessing embodied carbon and enhancing sustainability in building rehabilitation systems that integrate hybrid manufacturing approaches. This work involves analyzing the composition of equipment and construction elements produced through advanced hybrid additive manufacturing processes. It also includes implementing standardized methodologies for estimating greenhouse gas (GHG) emissions throughout the entire life cycle of materials and systems.

A particular focus will be placed on enhancing material efficiency, mechanical performance, and energy consumption through hybrid additive manufacturing, supported by integrated cost modelling and comprehensive life cycle assessment (LCA). Related quantitative insights will guide the development of more sustainable, economically viable, and environmentally responsible solutions, applicable to both complex, customer-oriented components and representative commercial/service buildings.

The developed models are to be supported by a structured embodied carbon database covering materials, construction rehabilitation solutions, and manufacturing processes. Preference will be given to candidates with knowledge of Python programming.

Qualifications and expertise: Candidates should hold a PhD degree in Mechanical Engineering or related fields. Knowledge in hybrid additive manufacturing chains, with demonstrated expertise in process development and optimization, material characterization, and numerical modelling techniques, is advantageous.

Language Skills: Proficiency in written and spoken English is required.

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; IST-ID Regulation for Research Studentships and Fellowships, available on <https://ist-id.pt/recursos-humanos/bolseiros/#documentos-relacionados>.

Workplace: The work will be developed at IN+ - Center for Innovation, Technology, and Policy Research, Instituto Superior Técnico (Alameda and TagusPark), under the scientific supervision of Professor Duarte Valério, Professor Carlos Alves da Silva and Professor João Pragana.

Duration: The research fellowship will have a duration of 6 months. It's expected to begin in July 2025 and it is not renewable.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is €1 851,00, being the payment method of the Fellow by wire transfer.

Selection methods: The selection methods will be the following: curricular evaluation, with eventual interview to the candidates, for the candidates with the best curricular classification. In the curricular evaluation, the following factors will be evaluated: curricular excellence (50%) and relevant experience (50%). After ordering, if necessary, an interview can be carried out to aid in the evaluation of candidates (in this case, the interview has a value of 25% and the curriculum evaluation 75%, respectively).

Composition of the selection Jury: Professor Duarte Valério, Professor Ricardo Gomes and Professor João Pragana.

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, or an appeal to the Executive Board of IST-ID, within 15 working days counted from the respective notification.

Application deadline and method of submission: The call is open from June 25 until July 8, 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) 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: jobs@in3.tecnico.ulisboa.pt