

Research Studentships (for Master or Integrated Master students)

Applications are open for one (1) Research Studentship for students enrolled in a Master degree, within the framework of the project HELIPOINT (<https://doi.org/10.54499/2022.08947.PTDC>), financed by national funds through FCT, under the following conditions:

Scientific Area: Geotechnical Engineering / Structures / Construction

Admission Requirements: It is a requirement that the candidate is enrolled in an Integrated Master or a Master degree programme.

Workplan: HELIPOINT is a joint academic-industry research project between CERIS and the SME, Hélica which has the aim of contributing to the wider fundamental understanding of this type of helical steel piles (HSP) and the development of a rational basis for the design of HSP based on Limit State and Sustainability principles, while also promoting the technique through the development of design guidance and demonstrating this through case studies supported by Life Cycle Analysis comparisons with other techniques. The scholarships on offer are for the following areas of investigation:

- 1) Numerical analysis of helical piles under lateral loading – involving the investigation of the behaviour of helical piles through the back-analysis of physical tests of conventional and modified helical piles under horizontal loading using advanced numerical analysis. Comparing different pile configurations and to developing recommendations on their range of applicability depending on, e.g., pile response and cost.
- 2) Reliable calculation models for axial resistance of helical screw piles – involving the further development of previous studies at Técnico to propose a new methodology for evaluation of bearing capacity factors for helical steel pile applications and proposal of model factors to use in design.
- 3) Routine models for axial load-displacement response of helical steel piles – involving the exploration of simple load transfer models applied to the response of isolated and grouped helical steel piles for use in routine design.
- 4) Pile group interaction effects in helical steel pile applications – evaluation of the significance of interaction effects within HSP groups based on analysis of case studies and parametric analysis and development of a methodology for including these effects in design.
- 5) Comparative life cycle analysis (LCA) of foundation solutions - involving the development of helical steel pile and conventional pile solutions for a range of situations (chiefly, increasing load) and comparing them via LCA to develop a decision support tool to allow techniques to be compared, e.g., for pre-design.

In all cases, there may be further opportunities to be involved in field and laboratory load testing of helical piles.

Any inquiries can be directed to: peter.bourne-webb@tecnico.ulisboa.pt

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

Workplace: The work will be developed at CERIS – Civil Engineering Research and Innovation for Sustainability of Instituto Superior Técnico (Alameda Campus), under the scientific supervision of Professors Teresa Maria Bodas Freitas and Peter John Bourne-Webb.

Duration: The research fellowship will have a duration of six (6) months with the possibility of extending this until the project end, up to the maximum of 24 months, including the duration of the initial contract.



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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 € 1040,98, being the payment method an option of the Fellow by Wire Transfer/Check.

Selection methods: The selection methods will be the following: *Curriculum evaluation and individual interview*, with the respective weightings of 60% and 40%.

Composition of the selection Jury: Maria Rafaela Pinheiro Cardoso, Peter John Bourne-Webb, Teresa Maria Bodas Freitas

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 February 10 until February 24, 2026.

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) proof of enrolment at an academic degree course (Master, Integrated Master); iv) motivation letter which should state which topic is preferred by the candidate.

Applications must be submitted to the email: bolsas@drh.tecnico.ulisboa.pt with peter.bourne-webb@tecnico.ulisboa.pt in cc.



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