

Research Studentships (for students of a course that does not award an academic degree)

Applications are open for one Research Studentship, within the framework of project/R&D institution (MIA-BREAST/ I&D (1801P.01295.1.01) MIA-BREAST (2022.04485.PTDC) - IST-ID, financed by national funds through FCT/MCTES, under the following conditions:

Scientific Area: Automation, Control and Robotics and Signal Processing

Admission Requirements: *to hold a bachelor or master degree and be enrolled at a course that does not award an academic degree and it is integrated in the educational project of a higher education institution, performed in association or cooperation with one or several R&D units;*

Workplan: The goal of this work is to introduce a new theoretical framework to tackle the challenge of correspondence-free multivector cloud registration within conformal geometric algebra. This formulation should offer the following characteristics: (1) to provide an orthogonal automorphism that extends beyond conventional vector spaces to encompass the entire conformal geometric algebra, while preserving the multivector grading, (2) provide the registration without directly relying on the raw input multivectors; instead, should leverage primitives or geometric entities derived from the conformal model (i.e., the multivectors), and (ii) the derivation of these entities by solving a multilinear eigenvalue problem to obtain sets of eigenmultivectors. This design explicitly eliminates the need to resolve pointwise correspondences during registration. Crucially, the framework must ensure rotation-and translation-equivariant properties between the original multivectors and the resulting eigenmultivectors. Experimental validation in benchmark point cloud datasets should be conducted to testify the effectiveness of the approach, with particular attention to cases involving substantial noise levels.

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 Instituto de Sistemas e Robótica of Instituto Superior Técnico, under the scientific supervision of Profs. Jacinto Nascimento and Fabio Faria.

Duration: The research fellowship(s) will have a duration of 4 months. It's expected to begin in November/2025, and may be eventually renewed up to the maximum of 8 months, including the duration of the initial contract.

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 € 1309,64€, being the payment method by Wire Transfer.

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

Composition of the selection Jury: Profs. Fábio Faria, Francisco Calisto e Jacinto Nascimento

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 29 until November 11, 2025.



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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 a course that does not award an academic degree; v) motivation letter; vi) declaration on honour that the applicant does not exceed with this contract an accumulated period of two years in this type of studentship, continuously or with interruptions.

Applications must be submitted through the website: <https://welcome.isr.tecnico.ulisboa.pt/opportunities/>



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