

## CALL FOR AWARDING RESEARCH FELLOWSHIPS WITHIN PROJECT GRANTS AND R&D INSTITUTIONS

### 1 (one) Research Fellowship (BI) for PhD student

1 Research Fellowship(s) (BI) is(are) open at the **FCiências.ID – Associação para a Investigação e Desenvolvimento de Ciências**, for the project/R&D institution “Instituto de Biofísica e Engenharia Biomédica (Institute of Biophysics and Biomedical Engineering)”, “UID/00645/2025”, funded by the Fundação para a Ciência e a Tecnologia, I.P. through national funds under the Programa Plurianual de Financiamento de Unidades de I&D 2025/2029, under the following conditions:

1. **Scientific Area:** Biomedical Engineering
2. **Admission requirements:** Masters in Biomedical Engineering and Biophysics, or Biomedical Engineering. Experience in programming in MATLAB and/or Python, signal and image processing, a minimum of 2 (two) journal publications as first author in Q1 journals in the area of the call as per work plan.
3. **Additional optional skills and qualifications:** Participation in research projects, preferable prior experience in the topics that will be addressed in the fellowship (dielectric property measurement, medical signal and image processing), proficiency in Portuguese and English (information to be provided in the CV).
4. **Contracting requirements:** Presentation of the academic qualifications and/or diplomas. Enrolment in PhD in Biomedical Engineering and Biophysics.

5. **Work plan:**

At the Instituto de Biofísica e Engenharia Biomédica (Institute of Biophysics and Biomedical Engineering), we have been studying MicroWave Imaging (MWI) for breast cancer diagnosis, with the world's only prototype capable of acquiring images of the breast and axillary region. Radar MWI irradiates the breast with a radar pulse and processes the resulting reflected signals to distinguish between healthy and cancerous tissue. In addition to being a comfortable and non-invasive imaging modality, it is also portable, low-cost, user-independent and consumes little energy. Although MWI has had considerable developments in the context of early diagnosis of breast cancer, improvements in its performance are needed to enable clinical use, which will be addressed according to the work plan of this PhD scholarship.

The proposed work plan is as follows, divided into the following Objectives (O) and respective Tasks (T):

O1. Numerical breast modelling

T1. 1 Creation of computational models of the breast, with the respective tumours, in 3D, derived from magnetic resonance imaging exams, using cutting-edge segmentation algorithms.

T1. 2 Population of a database of realistic breast and tumour models.

T1. 3 Incorporation of the dielectric properties of the modelled tissues using the Debye model.

O2. Experimental validation of a microwave imaging prototype for classification of benign and malignant breast tumors

T2.1 3D printing of breast tumours resulting from T1.1.

T2.2 Use of the MWI prototype to collect measurements of the reflections of tumours printed in T2.1.

T2.3 Use of machine learning algorithms (machine learning) on the signals collected in T2. 2 to validate the performance of our MWI prototype in classifying benign and malignant breast tumours.

O3. Dissemination, Exploitation and Communication

T3.1 Publication and/or contribution to writing scientific papers aimed at high impact factor peer-reviewed journals and/or conferences

T3.2 Active participation in Public Engagement activities, including: “Descobre a ULisboa”, Faculdade de Ciências’ “Open Day” and “Research & Innovation Day”, participating in visits to and from secondary schools, and at the HORIZON EUROPE Researchers’ Night. Production of science communication content for the institute’s website and social media (Facebook, Instagram and LinkedIn).

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T3.3 Communication of project results to clinicians (oncologists, radiologists), radiology technicians, representatives of medical equipment and/or representatives of patient associations.

6. **Legislation framework:** Research Fellowship Holder Statute, in accordance with Law 40/2004, of 18 August, in its current version and the FCT Regulation for Research Studentships and Fellowships, in its current version (Reg. 950/2019 published in DR on 16<sup>th</sup> December: <https://dre.pt/application/file/a/127230968>, or at the FCT website: <https://www.fct.pt/apoios/bolsas/regulamento.phtml.pt>), and FCIências.ID Fellowship Regulation, as approved on 12<sup>th</sup> May 2020 (available at [Regulamento de Bolsas de Investigação Científica da FCIências.ID](https://www.fciencias.id/regulamento-de-bolsas-de-investigacao-cientifica-da-fciencias-id)).

7. **Place of work:** The work will be developed at the Instituto de Biofísica e Engenharia Biomédica (Institute of Biophysics and Biomedical Engineering), Faculdade de Ciências, Universidade de Lisboa under the scientific supervision of Professor Raquel Cruz da Conceição.

8. **Fellowship duration:** This position is initially opened for 6 months due to start in July 2025. The fellowship contract may be potentially renewed for 42 months, in accordance with the provisions of Regulation of Research Fellowships from the Foundation for Science and Technology, I.P.

9. **Monthly allowance:** The fellowship amounts to € 1309,64, according to table values of the fellowships awarded directly by the FCT, IP. The fellowship holder will have a personal accident insurance and can ensure the right to social security through adherence to the voluntary social insurance scheme, if not covered by any other social protection scheme, pursuant to *Código dos Regimes Contributivos do Sistema Previdencial de Segurança Social*. The fellowship will be paid monthly by bank transfer.

10. **Evaluation and selection process:** Candidates will be assessed by

Criterion A – CV, 60%;

Criterion B – Motivation letter, 20%

Criterion C – Quality and relevance of the Q1 journal publications as first author (minimum 2, two), 20%.

Candidates will be ordered as per this grade:

Phase 1 Classification = (60% x A) + (20% x B) + (20% x C)

If there is a tie, the order will prioritise criterion A, then criterion B and then criterion C.

The top 2 (two) candidates in Grade-Phase 1 will be interviewed, the final evaluation will be as follows: the sum obtained in the evaluation of criteria A) to C) will correspond to 70% of the final classification and the interview will correspond to 30%.

Applicants whose application is scored with a final classification of less than 75 points are not eligible for granting a fellowship.

11. **Selection Committee:**

- President of the jury: Raquel Cruz da Conceição, Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa.

- Effective member 1: João Miguel Pinto Coelho, Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa.

- Effective member 2: Nuno Miguel de Pinto Lobo e Matela, Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa.

- Alternate member 1: Sofia Rita Cardoso Fernandes, Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa.

- Alternate member 2: Daniela Marques Godinho, Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa.

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12. **Publication/notification of results:** All the candidates will be notified by e-mail, sent by the call holder, with the selection meeting minutes enclosed.

13. **Deadlines:** This call for applications is open from 30/06/2025 to 11/07/2025 .

14. **Application:** Applications should be sent via e-mail to [ibeb@fc.ul.pt](mailto:ibeb@fc.ul.pt), with the subject 'PhD CALL IBEB 2025 - First Name + Surname]', by attaching the following documents:

- a. Curriculum vitae;
- b. Certificate of completion of previous degree <sup>Note 1, 2;</sup>
- c. Motivation letter;
- d. Journal publications in Q1 journals in the area of the call as per work plan (submit a minimum of 2 (two) as first author).

15. **Processing of personal data:** FCIências.ID – Associação para a Investigação e Desenvolvimento de Ciências, as the controller under the General Data Protection Regulation, collects and processes the personal data requested in the context indicated in paragraph 14., under the legitimate interests in ensuring the award of the research fellowship to candidates with the indicated profile.

The personal data will be kept for the period necessary for the execution of the purposes for which they are intended, being ensured the processing and protection in an appropriate and diligent way, the confidentiality and integrity of these data, through appropriate technical and organizational measures.

Personal data may be transmitted to third parties, namely the entity funding the research project, solely for the purposes specifically established. In this sense, whenever the transfer of personal data to countries outside the European Union and/or international organizations is necessary, compliance with the applicable legal provisions is ensured.

You have the right to request access, rectification, elimination, limitation of processing, the right to object and also data portability (if technically feasible), through the e-mail address: [dpo@fciencias-id.pt](mailto:dpo@fciencias-id.pt). You also have the right to lodge a complaint with the National Data Protection Commission.

For more information, we recommend consulting the Internal Rules of Data Protection of FCIências.ID - Association for Research and Development of Sciences at <https://fciencias-id.pt/>.

16. **Time limits for the appeal procedure:** In case of negative decision, the candidates have 10 business days, after the date of announcement of the results of the candidates' evaluation, to pronounce their disagreement in accordance with the *Código do Procedimento Administrativo*. Appeals against the final decision may be submitted to the Administration Board of FCIências.ID ([fciencias.id@fciencias-id.pt](mailto:fciencias.id@fciencias-id.pt)) within 15 business days after the notification date.

**Note 1:** The documents that prove the entitlement of the academic qualifications and diplomas can be dismissed during the application period and replaced by a declaration on their honour from the applicant ([Minuta PT](#), [Minute EN](#)). Their delivery is mandatory for the fellowship contractualization.

**Note 2:** Please note that - higher education degrees and diplomas awarded by foreign higher education institutions need to be recognized by a Portuguese higher education institution, pursuant to the [Decree-Law nr. 66/2018](#) (August 16) and the [Ministerial Order nr. 33/2019](#) (January 25). The presentation of the recognition certificate is mandatory for contract signature. More information can be obtained at: <https://www.dges.gov.pt/en/pagina/degree-and-diploma-recognition>.