

Call Notice for PhD Studentships

FCT-UNITE!-ULisboa – 2023 02/UNITE/2023

The University Network for Innovation, Technology and Engineering (UNITE!) is a consortium of European Universities of which the University of Lisbon (ULisboa) is part together with Technische Universität Darmstadt (Germany), Aalto University (Finland), KTH Royal Institute of Technology (Sweden), Grenoble Institute of Technology (France), Politecnico di Torino (Italy) Universitat Politècnica de Catalunya (Spain), Graz University of Technology (Austria) and Wrocław University of Science and Technology (Poland), announces a second call for 9 Doctoral Research Grants under the Collaboration Protocol between Fundação para a Ciência e a Tecnologia, I. P. (FCT) and ULisboa, under the FCT Research Grant Regulations (RBI) and the Research Grant Holder Statute (EBI), in their current wording.

The grants will be funded by the Fundação para a Ciência e Tecnologia (FCT), under the FCT-UNITE Protocol.

The research work underlying the grants will be carried out, in whole or in part, at ULisboa, preferably in articulation with another entity linked to any of the other universities that integrate ULisboa, promoting institutional cooperation.

1. Scientific Areas

A1- Applications will be accepted for one (1) scholarship in the scientific area of Artificial Intelligence, with specificity in machine learning for optimisation of plasma-assisted CO₂ conversion. A Master's degree in Engineering Physics or similar is required, and preference is given to candidates with experience in plasma physics and/or machine learning and/or numerical simulation. Details at: <http://web.tecnico.ulisboa.pt/vguerra/TopicUnite>

A2- Applications will be accepted for one (1) scholarship in the scientific area of Artificial Intelligence in specificity of Development of a general, ultra low power, computing architecture for data acquisition and AI/ML processing on the edge, based on spiking neural networks (SNN). It will require a MSc in Electrical/Computer Engineering or Computer Science. Good background and interest in computer architecture. Prior knowledge of AI/ML algorithms is desirable. Previous research experience in related fields will be considered. Good programming skills (C/C++/Python). Proficiency in English (spoken and written). Details at: <https://algorithms.inesc-id.pt/phd-unite-2023/edge-proposal.pdf>

A3 - Applications will be accepted for one (1) scholarship in the scientific area of Artificial Intelligence on the specificity of Learning-Based Program Repair: Advancing Software Quality and Productivity. It will require a MSc in Computer Science or related areas. Preference is given to candidates who satisfy one or more of the following criteria: Interest in the areas of Software Engineering and Artificial Intelligence; Practical experience with modern Artificial Intelligence techniques, such as Deep Neural

Networks and Large Language Models; Experience with Automated Program Repair methods and techniques; Experience at publishing at reputable CS events related to the topics addressed in this project.

Details at:

<https://joaoff.com/opportunities/2023-PhD-Unite-ULisboa-LBPR.pdf>

A6 - Applications will be accepted for one (1) scholarship in the scientific area of Energy in specificity of Development of highly efficient sustainable renewable energy sources via InkJet technology. It will require that the student should hold a MSc in Chemistry, Chemical Engineering, Physics, Materials Science or related areas. Good communication skills in English are also required. Details at:

http://molenergetics.fc.ul.pt/Downloads/Project_UNITE_PhD.pdf

A8 - Applications will be accepted for one (1) scholarship in the scientific area of Energy in specificity of Biobased metal containing carbon materials: a sustainable path to power energy storage. It will require a candidate with the ability to work both independently and as a member of a team. MSc in materials sciences, bioengineering, chemical engineering, energy technology, or equivalent. Master's students can apply, but the master's degree must be obtained and documented by the start date of the position. Strong interest in interdisciplinary approaches. Competencies and knowledge on materials synthesis and characterization, nanotechnology, electrochemistry are meritorious. Additional requirements: Good oral and written proficiency in English; Good skills in academic writing. Details at:

<https://drive.google.com/drive/u/5/folders/1ZXzje3iMblIGqyT1Pu9ztSzOZ9v6LUZe>

A12 - Applications will be accepted for one (1) scholarship in the scientific area of Industry 4.0 in specificity of Dexterous Co-manipulation through Telepresence. It will require a MSc in Computer Science, Robotics, Electrical Engineering or similar; Experience in robotics, machine learning and/or programming. Details at:

<https://cirrus.ciencias.ulisboa.pt/owncloud/s/qj2RZSPwzxnHgr9>

A13 - Applications will be accepted for one (1) scholarship in the scientific area of Industry 4.0 in specificity of Additive Manufacturing (AM) and Predictive Maintenance: Agile spare parts' management. It will require a Master degree in mechanical engineering, industrial management or industrial manufacturing, Knowledge about predictive algorithms, industrial maintenance, basics of supply chain and, as a plus, simulation knowledge of and practices with data analysis; Be able to do data analytics using Matlab, Python or other open language, Knowledge about Additive Manufacturing processes and applications. Details at:

https://drive.google.com/file/d/1U_yqAkqBtz_RSonHFBDTmJJAhjcGzZv/view?usp=share_link

A14 - Applications will be accepted for one (1) scholarship in the scientific area of Industry 4.0 in specificity of Contribution to multi-material 3D printing of parts with embedded functionalities. It will require a Master degree in mechanical engineering, industrial management or industrial manufacturing. Potential candidates with background from other engineering disciplines (design, data, computing) will also be taken into account Computer Aided Design skills (Solidworks, Catia, Revit, Fusion), Additive Manufacturing processing software skills (Cura, Slicer, Stratos, Netfabb), Quality

management and Statistics in use (Minitab), Additive manufacturing and prototyping competences in use (Operation and Maintenance of equipment). Product development and design project experience (Internships, Hackatons, Challenges). Fluent English mandatory. Portuguese and Spanish as an asset. Creativity & innovation, motivation, soft skills.

Details at:

https://drive.google.com/file/d/1J06BHu5QVX34gLOmngtFH56wCp5t6ai_/view?usp=share_link

A15 - Applications will be accepted for one (1) scholarship in the scientific area of Industry 4.0 in specificity of Lean & Green, the Industrial Management model for the Industry 5.0. It will require a Master degree in mechanical engineering, industrial management or industrial manufacturing. Knowledge about Lean or Six Sigma, and Continuous Improvement. Knowledge of and practices with data analysis; Be able to do data analytics using Python or other open language. Knowledge about sustainable transition in manufacturing and Life cycle assessment (LCA) is highly valued. Details at:

<https://www.dropbox.com/s/sjrh778o70wjnn/Lean%20%26%20Green%2C%20the%20Industrial%20Management%20model%20for%20the%20Industry%205.0%20%28IST%26Polito%29.pdf?dl=0>

2. Application

The call is open between 00.00h of 24 November 2023 and 23.59h of 31 December 2023 (Lisbon time). All the application procedures, including submission, evaluation, results communication, preliminary hearings, claims, and appeals are exclusively done online.

Applications are submitted through the email address: candidaturas.rh@reitoria.ulisboa.pt. Other means will not be accepted.

Each applicant can submit only one application to a given scientific area, under penalty of cancellation of all submitted applications; although, it is possible to choose 3 related scientific areas and indicate the order of priority.

Providing false statements or carrying out acts of plagiarism by applicants leads to the exclusion of the application, regardless of the adoption of other corrective and punitive disciplinary measures.

3. Studentships Type and Duration

The Doctoral Research Scholarships are scholarships in Portugal and abroad are intended to fund research activities leading to a doctoral degree at the University of Lisbon and another University participating in UNITE! in the scientific fields covered by the consortium.

The research activities leading to the award of the PhD degree will take place at the University of Lisbon and at one of the foreign universities of the UNITE! consortium.

The duration of the fellowships is, as a rule, one year, renewable up to the maximum of 48 months requested in the application. Fellowships may not be awarded for a period of less than 3 consecutive months or more than 48 months. The period of the work plan that takes place in one of the universities of the UNITE! consortium cannot exceed 24 months.

4. Recipients

The Doctoral Research Grants are intended for candidates enrolled or candidates who meet the conditions to enroll in a study cycle leading to the degree of doctor, and who intend to develop research activities leading to the degree by ULisboa and another university participating in UNITE! consortium.

5. Admissibility

5.1 Applicant admissibility requirements

The following citizens may apply to this call:

- National citizens or citizens from other member-states of the European Union;
- Third-party states individuals;
- Stateless individuals;
- Citizens holding a political refugee status.

To apply for a PhD studentship the applicant needs:

- To hold a Masters as described in point 1;
- To be permanently and habitually resident in Portugal at the start date of the period of the work plan abroad, a requirement applicable to both national and foreign citizens.;
- To not have benefited from a PhD or a PhD in industry studentship directly funded by FCT, regardless of its duration;
- To not hold a doctoral degree.

5.2 Application admissibility requirements

It is mandatory to submit the following, under penalty of non-admission:

- Updated applicant's *Curriculum vitae*, either in CIENCIAVITAE or other platform; applications whose CV does not contain any curriculum information, presenting only name and identification of CIENCIA ID will be considered ineligible.
- Academic degree certificates, clearly specifying the final grade and, if possible, the grades obtained in all subjects taken; alternatively, the applicant's declaration of honor on how the master's degree was completed by the end of the application period.
- Documents proving the recognition of academic degrees awarded by foreign institutions and conversion of the corresponding classifications to the Portuguese scale may be dispensed during the application phase, provided they are replaced by a declaration of honor indicating that the candidate will obtain, before the conclusion signing of the contract, such conversion, and that the foreign academic degree must have been obtained during the period of validity of the contract present call.
- Motivation letter with a detailed and justified explanation of the research topic.
- Two recommendation letters.
- Research Work Plan to be developed within the scope of scientific areas defined in this call – see point 1 – containing the following sections: Title, Abstract, State of the Art, Objectives, Detailed Description and Bibliographical References, with a maximum of 3000 words. The Plan must be accompanied by a Timeline, indicating the schedule and location of proposed tasks, as well as the main goals (milestones) to be achieved. Supervisors should also be identified.

- The application and all documents submitted, including letters of motivation and recommendation, must be written in Portuguese or English.

Please note that:

- Only applicants who have completed the cycle of studies leading to master's degree before the call deadline will be admitted. If completion certificate is not available, a declaration of honor from applicants will be accepted; it should state that the necessary qualifications for the purposes of this call have been completed before the end of the Call deadline. Studentship award is conditioned to the presentation, in the contracting stage, of the due degree certificates.
- In the case of academic degrees awarded by foreign higher education institutions, and in order to ensure the application of the principle of equal treatment to candidates holding foreign and national academic degrees, it is mandatory to recognize these degrees and convert the respective final classification to the Portuguese classification scale.
- The recognition of foreign academic degrees and diplomas, as well as the conversion of the final grade to the Portuguese grading scale, can be obtained at any public higher education establishment or at the Directorate-General for Higher Education (DGES, only in the case of automatic recognition). Regarding this matter, please consult the DGES portal: <http://www.dges.gov.pt>.

6. Work Plan and Scientific Supervision

The work of the grant holder will be partially developed in one of the Universities of the UNITE! consortium, for a period that cannot exceed 24 months.

All the research work will be carried out under the supervision of a scientific advisor appointed by the host entity under the terms foreseen in art. 5-A of the EBI and, compulsorily, at least one integrated doctoral member of the UNITE! consortium.

7. Evaluation Criteria

The evaluation process assesses the merit, curriculum and motivation of the applicants, as well as their performance in a possible interview, carried out in English, by videoconference.

All admissible applications must be graded from zero (0.00, minimum) to five (5.00, maximum) in each of the three following evaluation criteria:

- Criterion A – Merit of the Applicant (70%):
 - Sub-criterion A1 – Detailed analysis of the CV, scientific publications and communications, and outreach activities (50%)
 - Sub-criterion A2 – Participation in research projects and research or professional experience (40%)
 - Sub-criterion A3 – Motivation letter (10%)

The criterion A score is calculated through the following formula:

$$\text{Score A} = (0,5 \times A1) + (0,4 \times A2) + (0,1 \times A3)$$

- Criterion B – Interview (videoconference) in English, for applicants whose Intermediate Score (CI) is equal to, or over 3.00 (30%)

Final grades result from the application of the following formula:

$$\text{Final Score} = (0,7 \times A) + (0,3 \times B)$$

In the event of a tie in the final classification, the order of applicants will be determined by the grades obtained in each of the evaluation criteria, according to the following order of importance: criterion A, criterion B, and criterion C.

Applicants whose application is scored with a final grade lower than 3.00 are not eligible for studentship granting.

Important notice for applicants with degrees issued by non-Portuguese higher education institutions:

- Applicants with diplomas issued by non-Portuguese higher education institutions may apply and will be evaluated by the same criteria as applicants with diplomas issued by Portuguese institutions, provided that they present, at the time of their application, proof of recognition of academic degrees or proof of automatic recognition, as well as the conversion of the final grade to the Portuguese grading scale under the terms of the applicable legislation.
- Applicants with recognized foreign diplomas who do not present proof of conversion of the final grade to the Portuguese grading scale will be assigned the minimum grade (10 out of 20) for criterion A (sub-criterion A1).
- In any case, studentship contracts with applicants holding degrees issued by foreign institutions will only be signed upon presentation of proof of recognition of academic degrees and conversion of the final grade, as indicated above.

8. Disability Bonuses

Applicants who declare a degree of disability equal to or greater than 90% will receive a 20% bonus in criterion A – Merit of the Applicant. Applicants who declare a degree of disability equal to or greater than 60% and less than 90% will have a bonus of 10% in this criterion. The degree of disability should be duly proven by submitting, in the application, the document 'Atestado de Incapacidade Multiuso', issued under the terms of Decree-Law no. 202/96, of October 23, in its current version.

9. Evaluation

The evaluation panel is composed of the following members, in each scientific area:

A1, A2, A3 - Ana Paiva (President), IST, Universidade de Lisboa; Manuel Lopes, IST, Universidade de Lisboa; Bruno Martins, IST, Universidade de Lisboa; Inês Lynce, IST,

Universidade de Lisboa; Rui Henriques, IST, Universidade de Lisboa. Substitute members: Pedro Viegas, IST, Universidade de Lisboa; Luís Guerra e Silva, IST, Universidade de Lisboa

A6, A8 - Carlos Santos Silva (President), IST, Universidade de Lisboa; Fátima Montemor, IST, Universidade de Lisboa; Ana Paula Ribeiro, IST, Universidade de Lisboa; Jorge Correia, Faculdade de Ciências, Universidade de Lisboa; Edgar Fernandes, IST, Universidade de Lisboa. Substitute members: Marta Alves, IST, Universidade de Lisboa; Luís Guerra e Silva, IST, Universidade de Lisboa

A12, A13, A14, A15 - Paulo Peças (President), IST, Universidade de Lisboa; Mónica Oliveira, IST, Universidade de Lisboa; Pedro Amaral, IST, Universidade de Lisboa; Marco Leite, IST, Universidade de Lisboa; Inês Esteves Ribeiro, IST, Universidade de Lisboa; Luís Correia, Faculdade de Ciências, Universidade de Lisboa. Substitute members: Tânia Ramos, IST, Universidade de Lisboa; Virgínia Infante, IST, Universidade de Lisboa

The panel will evaluate all applications according to the evaluation criteria mentioned in this Notice of Call weighting the evaluation elements.

During the evaluation process, all panel members, including the coordinator, will comply with a set of responsibilities, such as the duty of impartiality, declaration of any conflicts of interest and confidentiality. At all stages of the evaluation process, confidentiality is absolutely protected and ensured in order to guarantee the independence of the applications' evaluations.

For each application, the panel will produce an evaluation form where the arguments that lead to the scores given for each of the evaluation criteria and sub-criteria are clearly, coherently and consistently presented, and where any compensations are described.

Panel meetings must produce minutes for which each panel member is responsible. The minutes and annexes must contain the following information:

- Name and affiliation of all panel members;
- List of excluded applications and justifications;
- Final evaluation form for each applicant;
- Provisional score, ranked from the higher to the lower;
- Declarations of Conflict of Interest (CDI) of the panel members.

10. Dissemination of Results

Evaluation results are communicated to the applicant's email address, or to another indicated by the applicant. Official dissemination is published on the ULisboa website.

11. Deadlines and Procedures for Preliminary Hearing, Claims and Appeals

Once the provisional ranked list of evaluation results has been communicated, applicants who have an unfavorable provisional decision may dispute it during the preliminary hearing phase, which takes place within 10 working days, according to articles no. 121 and the following of the Administrative Procedure Code (CPA).

The final decision will be disclosed after the analysis of the applicant's arguments, presented in the preliminary hearing. Final decision can be claimed within 15 working days or, alternatively, appealed within 30 working days, both counted from the date of the respective notification of the final results.

Applicants who choose to present a complaint must address their arguments to a member of the FCT Board of Directors (Conselho Diretivo) with delegated competence. Applicants who prefer to present an appeal must address their arguments to the FCT Board of Directors.

12. Starting Date of the PhD Studentship

Studentships will start at the 1st (first) day of the month indicated by the applicant during granting procedure. Applicants have 6 months to submit all documents necessary for contract.

13. Requirements for Studentship Granting

All studentship contracts are signed directly with FCT:

The following documents are of mandatory submission for the studentship contract:

- a) Copy of the documents of personal identification, tax number and, if applicable, social security;¹
- b) Document of proof of permanent and usual residence in Portugal, valid at the studentship starting date;
- c) Copy of the academic degree certificates;
- d) Presentation of the registration of recognition of foreign academic degrees and conversion of the respective final classification to the Portuguese classification scale, if applicable;
- e) Work Plan;
- f) Document proving the acceptance and enrolment in the 3rd degree cycle in the higher education institution which will grant the PhD;
- g) Supervisor(s) statement declaring the responsibility for supervision of the work plan, as established in Article no. 5-A of the Statute for Research Fellowships (template is provided by FCT).
- h) Institutional document supporting the applicant, issued by the institution(s) where the work plan will be developed, guaranteeing the necessary conditions to its success, as well as the fulfillment of the duties established in Article no. 13 of the Research Fellowship Holder Statute (template is provided by FCT).
- i) Updated document proving the exclusivity dedication regime (template is provided by FCT).

Studentship granting is still dependent on:

- The fulfilment of all requirements listed in this Notice of Call;
- The results of the scientific evaluation;
- The absence of unjustified non-compliance of the studentship holder during previous directly or indirectly FCT-funded fellowships;

¹ The presentation of these documents may optionally be replaced by in-person presentation in the funding agency, which will keep the elements needed for the validation and execution of the contract, including the numbers of personal identification, taxation and social security, as well as respective expiry dates.

- FCT available budget.

The lack of any of the documents necessary to complete the contracting procedure implies the expiration of the studentship granting and the conclusion of the process; applicants have up to 6 months after the provisional granting to present all the listed documents.

14. Funding

Studentship payment will start after returning of the signed contract to FCT, which should happen within 15 working days after its delivery. Studentships awarded in this Call will be financed by FCT with funds from the State Budget, and, where eligible, with funds from the European Social Fund, through the Demography, Qualifications and Inclusion Program (PDQI), in accordance with the regulatory provisions laid down for this purpose.

15. Studentship Allowance

The studentship holder is awarded a monthly maintenance subsidy, the amount of which varies depending on whether activities are carried in Portugal or abroad, in accordance with the table in Annex I of the RBI of the FCT.

The studentship may also include additional allowances, according to RBI's Article no. 18 and values indicated in its Annex II.

All studentship holders benefit from personal accident insurance for research activities, supported by FCT.

All studentship holders who are not covered by any social protection regime can use the right to social security through the voluntary social security regime, under the terms of the Contributory Scheme of the Social Security System. FCT will assume the charges resulting from contributions under the terms and within the limits set out in Article 10 of the EBI.

16. Payment of Studentship Allowance

Payments due to the studentship holder are made by bank transfer to the account previously indicated. Payment of the monthly maintenance allowance is made on the first working day of each month.

Payments for registration, enrollment or tuition fees are made by FCT directly to the national institution where the studentship holder is enrolled.

17. Terms and Conditions of Studentship Renewal

The renewal of the studentship always depends on the holder's submission, within 60 working days prior to the renewal starting date, of the following documents:

- a) Declarations issued by the supervisor(s) and by the host institution(s) attesting the work plan development and the evaluation of corresponding activities;
- b) Updated document proving compliance with the exclusive dedication regime;
- c) Declaration demonstrating the enrolment renewal in the study cycle leading to the doctoral degree.

18. Information and Publicity of the Granted Funding

In all R&D activities directly or indirectly financed by the studentship holder, namely in all communications, publications and scientific creations, as well as the thesis, must include reference to FCT. For this purpose, the FCT insignia must be inscribed in the documents referring to these actions.

The disclosure of research results financed under the RBI must comply with the open access guidelines, publications and research results in force at the FCT.

In all studentships, follow-up and control actions may be carried out by national bodies in accordance with the applicable legislation. The supported studentship holders are obliged to collaborate and provide the requested information, which includes carrying out surveys and studies of evaluation in this area, even after the studentship ended.

19. Non-discrimination and Equal Access Policy

FCT promotes a policy of non-discrimination and equal access, whereby no applicant may be privileged, benefited, damaged or deprived of any right or exempt from any duty. This includes ancestry, age, sex, sexual orientation, marital status, family situation, economic situation, education, origin or social condition, genetic heritage, reduced work capacity, disability, chronic disease, nationality, ethnic origin or race, territory of origin, language, religion, political or ideological convictions and trade union affiliation.

20. Applicable Legislation and Regulation

The present Call is governed by this Notice of the Call, the FCT Regulation of Research Fellowships, approved by Regulation no. 950/2019, published in the Series II of the DR, of 16th December; by the Research Fellowship Holder Statute, approved by Law No. 40/2004, of 18th August, in the current version, and by other applicable national and European legislation.

21. Contact Point

Information about the Call can be requested through the email: bolsas.ciencia@reitoria.ulisboa.pt