ANNOUNCEMENT FOR THE AWARD OF A RESEARCH FELLOWSHIP

Title: Non-conferring Research Fellowship for Master - PhytOS; 1 vacancy

Reference: 2024.14706.PEX_02/2026_CMEMS

A call for applications is now open for the attribution of 1 (one) non-conferring research fellowship for master within the scope of the I&D project of Center for Microelectromechanical Systems (CMEMS-UMinho), *Revolutionizing in-situ Phytoplankton identification: Digital Holography and Multispectral Detection integrated in a microfluidic device*, reference 2024.14706.PEX, financed national funds through Fundação para a Ciência e Tecnologia (FCT), through the Operational Programme IC&DT in All Scientific Domains (PTDC), under the following conditions:

Scientific Area: Micro/Nanotechnologies

Recipient category: The fellowship is intended for master in the areas of Micro/Nanotechnologies, enrolled in a non-degree course in fields related to those specified in the public notice.

Requirement for granting the fellowship:

- The applicants may apply without prior registration in the course for which the fellowship is open. The requirement to enrol in a degree course or non-academic degree course will be verified on the date of contracting the fellowship;
- Only fellowships whose selected applicants present a valid proof of enrolment in a degree course or non-academic degree course will be contracted, according to the type of the fellowship, issued by a Higher Education Institution, indicating, respectively, the academic year or its duration (star and term).

Applicants' eligibility: Candidates who meet the conditions set out in Article 9 of the Research Grant Regulations, No. 950/2019, of 16-12-2019, of FCT I.P. are eligible.

Nationals or citizens of other European Union member states, third-country nationals, stateless persons, and citizens with political refugee status are eligible to apply for this competition.

Candidate eligibility requirements:

a) Candidates must have, at the date of application, a master degree in Micro/Nanotechnologies. During the contracting phase, proof of academic qualifications completed by the application deadline is required, including those resulting from academic degree recognition processes.

b) Contracting phase requirements: enrollment in a non-degree course or a doctoral program in the area or related area specified in the call for proposals.

c) Preferred requirements: (1) Experience in Machine Learning, with a focus on feature engineering, model validation, and pattern classification in noisy, in-situ data. (2) Experience in optical signal processing and analysis, spectrofluorometry (multi-channel fluorescence signatures), and image processing/holography. (3) Programming skills and experience in developing data pipelines (preferably in Python, using scikit-learn, NumPy, pandas, SciPy, and MATLAB). (4) Hands-on experience in validating sensor performance, particularly for underwater monitoring systems, through field trials and under real-world environmental conditions. (5) Initiative and strong teamwork skills.

Work plan and objectives to be achieved:

The work plan aims to develop and validate an imaging system based on multispectral fluorescence detection coupled with digital holography, integrated into a microfluidic platform for the automatic detection and identification of toxic phytoplankton, within the scope of the research project. The main objectives and expected outcomes are as follows:

- Review the state of the art in phytoplankton monitoring methodologies, particularly those based on multispectral fluorescence and digital holography.
- Design and implement an experimental multispectral fluorescence acquisition system using different phytoplankton species.
- Develop Machine Learning algorithms to automatically detect and classify phytoplankton species based on their spectral and morphological features extracted using digital holography and multispectral fluorescence techniques.
- Integrate the system into a microfluidic platform and validate it using laboratory samples of known species and, if possible, real environmental samples.
- Write a scientific paper.

Applicable legislation and regulations: Research Fellow Statute (EBI), approved by Law nº. 40/2004 of August 18, in its current wording and FCT Research Fellowship Regulation, approved by Regulation nº 950/2019, published in the Diário da República, 2nd series, of December 16, 2019, in its current wording, and Scientific Research Fellowship Regulation (RBIC) of the University of Minho, approved by order nº 4998/2025, published in the Diário da República, 2nd series, nº 81, of April 28, 2025 Amended and republished through amendment statement no. 634/2025/2, published in the Official Gazette, 2nd series, no. 132, of July 11.

Host/Contracting institution and scientific supervision: The work plan will be carried out at the Center for Microelectromechanical Systems of the University of Minho (CMEMS-UMinho), located in the Azurém Campus - Guimarães, under the scientific supervision of Doctor Paulo Jorge Teixeira de Sousa, and coordination of Professor Luís Miguel Valente Gonçalves.

Fellowship duration: The grant will take place for a period of 06 months, with a provisional starting date on December of 2026. The fellowship grant may, eventually, be renewed up to the maximum limit allowed by the project and/or applicable legislation.

Amount of the research grant: The amount of the grant corresponds to 1 309,64 €/month, according to the table of values of the Research scholarship of the University of Minho, updated annually, as decided by the Management Board.

Payment is made on the 23rd of each month, through bank transfer to the Bank Identification Number of the fellow identified in the contratualization process.

Other components of the research grant: Define other components of the scholarships, as provided for in Article 18º of the FCT Research Scholarship Regulations (RBI).

Other benefits: Reimbursement of Voluntary Social Insurance, if the candidate chooses to receive it, corresponding to the 1st level of discounts (for research grants with a total duration 6 months or higher) and personal accident insurance.

Exclusivity regime: The grantee will perform the activities under exclusivity, as foreseen in article 5º of the Research Fellow Statutes and applicable regulations.

Selection panel: The selection panel is constituted by the following members:

- President: Doctor Raquel Oliveira Rodrigues, Assistant Researcher at the Center for Microelectromechanical Systems, CMEMS of the University of Minho;

- Effective member: Doctor Carlos Alberto Jorge Leite Faria Researcher at the Center for Microelectromechanical Systems, CMEMS-UMinho, University of Minho;

- Effective member: Doctor Doctor Vanessa Fernandes Cardoso, Assistant researcher at the Center for Microelectromechanical Systems, CMEMS of the University of Minho;

- Substitute member: Doctor Paulo Jorge Teixeira de Sousa, Júnior Researcher at the Center for Microelectromechanical Systems, CMEMS-UMinho, University of Minho;

-Substitute member: Doctor Vânia Cristina Gonçalves Pinto, Júnior Researcher at the Center for Microelectromechanical Systems, CMEMS-UMinho, University of Minho.

The first effective member will substitute the President of the selection panel in case of impediment, being nominate the first substitute member in the place of the first effective member.

Criteria and procedures for applications assessment and selection: The applications assessment will focus on the candidate's Merit, following evaluation criteria, valued on a scale of 0 to 5 values:

Applicant Merit - AM (100%):

A1 - Academic path (considering the classifications of academic degrees), with a weighting of 35 %;

A2 - Personal curriculum (considering professional and scientific background), with a weighting of 40 %;

A3 - Proven knowledge of the preferred requirements described in item c) of the Eligibility Criteria for the Application, with a weighting of 10%.

A4 - Motivation letter, with a weighting of 15 %.

The final classification of the applicant's merit with the achieved through the following formula:

AM = (A1*0.35) + (A2*0.40) + (A3*0.10) + (A4*0.15)

If the selection panel does not feel able to decide using the method under MC, it may choose to conduct an Interview. In that case, MC will have a weighting of 70% and the candidates classified in the first 2 positions, will be admitted to the Interview phase, in which the Jury will evaluate the following sub-criteria:

A. **Interview – ENT** (30%)**:**

B1: Interpersonal skills (5%).
B2: Demonstrated knowledge in the area of the competition (10%).
B3: Motivation (10%)
B4: Language skills (5%).

The final classification of the Interview with the achieved through the following formula:

ENT=(B1×0.05) + (B2×0.1) + (B3×0.1) + (B4×0.05)

The final classification (CF) of the Candidate Merit (MC) and Interview (ENT) will be obtained by applying the following formula:

CF = (MC*0.7) + (ENT*0.3)

Applicants with degrees obtained abroad must present proof of recognition of qualifications in Portugal and conversion of the final classification obtained in them to the Portuguese classification scale or declaration under the terms indicated in the previous point. Candidates who do not comply with one of

these provisions, the selection panel will assign "0" in the grade of the graduation and/or master course. Candidates will be evaluated on the remaining parameters.

If none of the candidates demonstrate to have a suitable profile for the execution of the work plan, the Jury is entitled to close this call without selecting a candidate.

Application deadline and submission: The call for applications is open for a period of 10 working days from the date of publication on the Euraxess portal.

Applications must be submitted by email to *secretaria@cmems.uminho.pt*, indicating the reference number of the competition in the subject line. Only applications submitted within the established deadline and accompanied by the following documents will be accepted:

a) Candidate's updated curriculum vitae;
b) Certificates of the academic degrees obtained or, if applicable, the candidate's declaration of honor that he/she has completed the degrees required in the notice by the application deadline (not applicable to research initiation grants).
For degrees obtained abroad, the record of recognition of the academic degrees and record of the conversion of the respective final classification to the Portuguese classification scale must be presented, or, alternatively, a declaration of honor from the candidate.
This declaration must attest to facts that occurred prior to the application. In the event of a discrepancy between the information contained in the declaration and the documentation submitted for the purposes of contracting the scholarship, only the information contained in the latter will be considered. If it is found that the documents proving the academic degree and diploma, or their recognition under the terms of Decree-Law n. º 66/2018, of August 16, do not correspond to the classifications awarded in the assessment of the academic career and may consequently alter the candidate's ranking, the scholarship will not be contracted;

c) Motivational letter to develop the activities proposed in the work plan outlined, aligned with Applicant's knowledge and training interests;

d) Statement proving that meets the conditions for the grant typology, according to the application requirements;

e) Other mandatory documents to be attached at the time of application.

Form of publication/notification of results: The results of the evaluation are published in a single list ordered by the final score obtained), posted in a visible and public place in the host unit, as well as by

email to all candidates, attaching, for this purpose, the minutes of the jury's deliberations, within a maximum period of 90 working days from the deadline for submission of applications.

Candidates are informed, at a preliminary hearing, in accordance with Articles 121 and 122 of the Administrative Procedure Code, of the likely outcome of the final decision, and may comment within 10 working days of this notification.

An appeal may be lodged against the final decision within 15 working days, or an appeal may be lodged with the highest executive body of the funding entity within 30 days, both after the respective notification (Article 12(nº6) of the FCT Research Grant Regulations).

Within 10 working days of notification of the grant award, the applicant must declare their acceptance in writing. In case of non-acceptance, the next highest ranked applicant will be notified immediately.

Fellowship contractualization: The scholarship is awarded through the signing of a contract between the University of Minho and the scholarship recipient, in accordance with point 2.4 of the Rules for the Award and Management of Scholarships https://www.fct.pt/wpcontent/uploads/2022/03/Normas_de_Atribuicao_de_Bolsas_2021.pdf and the draft contract in Annex II of the University of Minho's Scientific Research Scholarship Regulations.

The contract can only be signed after receipt of all the documentation required for the type of scholarship, which must occur within a maximum period of 6 months, including proof of academic degrees or diplomas, as well as enrollment in non-degree study cycles or courses, as applicable.

Once all the documentation has been received, the contracting entity has 60 working days to sign the scholarship contract. Once received by the scholarship holder, the contract must be returned, duly signed, within 15 working days.

Term and cancellation of fellowship contracts: Without prejudice to the other grounds laid down in the University of Minho's Scientific Research Scholarship Regulation and in the Research Fellow Statute, the scholarship will cease on completion of the contracted work plan, as well as on expiry of the period for which it was granted or renewed.

The **final report** must be submitted to the scientific advisor, in accordance with the defined objectives and evaluation criteria, no later than 60 working days after the end of the scholarship and must be drawn up in accordance with Annex I of the Regulations of the University of Minho.

Non-discrimination and equal access policy: Universidade do Minho actively promotes a policy of non-discrimination and equal access, so that no candidate may be privileged, benefited, harmed or deprived of any right or exempt from any duty due, namely, to ancestry, age, sex, sexual orientation, marital status, family status, economic situation, education, social origin or condition, genetic heritage,

reduced working capacity, disability, chronic illness, nationality, ethnic origin or race, territory of origin, language, religion, political or ideological convictions and trade union membership.

Declaration of Honor

Academic qualifications

I, (full name), candidate for the vacancy for the award of a (type of scholarship), within the scope of the project (name or reference of the project), published on the Euraxess portal, with the reference (ref. notice), declare on my honor that I have completed the academic degree of (academic degree), qualifying for the type of scholarship in the competition, namely the course (designation), by the (University conferring the degree), on the date XX/XX/XXXX, with a final average of XXXXX values on the YY scale.

As it is not possible for me to present proof of qualifications until the end of the competition, I declare that I undertake to present the aforementioned certificate at the conclusion of the scholarship contract, in the event that I am selected for the vacancy in the competition.

As this is true, I hereby date and sign this declaration.

(Place), (date).

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(full name)

NOTE: The declaration may only attest to facts that occurred prior to the application.

In the event of a discrepancy between the information contained in the declaration and the documentation submitted for the purpose of contracting the scholarship, only the information contained in the latter will be taken into account.

Declaration of Honor

I, (full name), bearer of identification document number (XXXX), candidate for a research grant (type of grant), within the scope of the project (name or reference of the project), published on the Euraxess portal, with the reference (ref. call for proposals), declare on my honor that (I have not received any research grants to date / I have received the following research grants) under the Research Grant Holder Statute.

University	Financing Entity	Project	Type of Grant	Duration	Start	Term

As this is true, I hereby date and sign this declaration.

(Place), (date).

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(full name)