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Announcement for
the attribution of 1
Research
Scholarships

UNIVERSIDADE DO MINHO

CMAT - Centro de Matemática

ANNOUNCEMENT FOR THE ATTRIBUTION OF ONE RESEARCH SCHOLARSHIP– BI1.3/ STrengthS4WineChaiN - CMAT/2025

A call for tenders is now open for the attribution of one Research Scholarship within the scope of the R&D project “STrengthS4WineChaiN - Scientific and technological synergies for the development of the vineyard and wine chain in the North Region”, reference NORTE2030-FEDER-0178610, with support of the Programa Regional do Norte 2021-2027 [NORTE2030], under the following conditions:

1. **Scientific Area:** Mathematics
2. **Recipients:** Candidates with a Bachelor degree in **Mathematics, Computer Science** and related areas, and enrolled in Master Programmes in the areas of Mathematics, Computer Science, and related areas.

Preferred conditions: preference will be given to candidates with knowledge of machine learning and Python.

3. **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 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 will be contracted, according to the type of the fellowship, indicating, respectively, the academic year or its duration (start and term).

4. **Profile:**

The following are eligible to apply for this competition:

- Nationals or citizens of other member states of the European Union;
- Citizens of third countries;
- Stateless persons;
- Citizens with political refugee status

5. **Admissibility requirements:**

It is essential, under penalty of not being admitted to the competition, to attach the following documents to the application:

- The candidate's curriculum vitae.
- Certificates of the academic degrees obtained or, if applicable, the candidate's declaration of honour 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, the candidate's declaration of honour (not applicable to research initiation grants).

6. Eligibility of applicants: applicants must meet the eligibility conditions established in article 9 of the FCT I.P Research Grant Regulation (2019).

7. Work plan:

The candidate will carry out R&D activities within the scope of the STrengthS4WineChain project, in Activity 1 - Technology & Innovation for the sustainability of the wine chain, Task 1.3 - Precision viticulture and decision support systems, with the aim of consolidating their scientific training and contributing to the advancement of the project's objectives.

The work plan to be carried out involves the development and implementation of multi-scale technological solutions applied to precision viticulture, through the integration of decision support systems, with the aim of optimising viticultural management and promoting agri-environmental sustainability.

The integration and analysis of data obtained in situ or remotely, using mathematical modelling, artificial intelligence and machine learning techniques, aims to monitor in near real time and characterise the physiological and biophysical variables of the vines. The aim is to build models that support decision-making with an impact on wine production.

During the contract period, the selected candidate will participate in the study of mathematical models and in dissemination activities. The specific activities (SA) to be carried out include:

SA 1: Study of the art, namely, and not exclusively, clustering models associated with discrete Markov chains or the spectral theory of graphs. The preliminary study should also cover solutions in the field of statistics, such as time series, as well as other methods in the field of artificial intelligence and machine learning, such as PCA and k-PCA, Tensor PCA, SVM and ANN.

SA 2: Analysing the data obtained, namely dealing with missing values, correcting inconsistent or duplicate values, eliminating outliers if necessary, and reducing dimensionality.

SA 3: Implementation and/or application of the methods in the database built, using libraries such as Python's scikit-learn or tensorflow (depending on the methods), for subsequent analysis and discussion and validation of the results.

SA 4: Writing a detailed report on the studies and mathematical approaches, implementations and conclusions.

In addition to these technical tasks, the successful candidate will be expected to:

- Participate in regular project monitoring meetings;
- Collaborate with team members and project partners.

- 8. Applicable legislation and regulations:** : Research Fellowship Holder Statutes, approved by Law n° 40/2004 of August 18, in its current version published by Decree-Law n° 123/2019 of August 28; Regulation of Scientific Research Fellowships of the University of Minho (RBIC), published in “Diário da República”, 2nd serie, n° 119, through dispatch n° 6524/2020 of 22-06-2020, ratified by ratification declaration n° 447/2021 of 22-06-2021 and Regulation of Research Studentships and Fellowships (RBI) of the Foundation for Science and Technology, I.P. - in force.
- 9. Host institution and scientific supervision:** The work will be developed at CMAT – Centro de Matemática da Universidade do Minho, and will be supervised by José Pedro Miranda Mourão Patrício.
- 10. Duration of the Research Scholarship:** The research scholarships will last 12 months, starting on September 2025.
- 11. Monthly Maintenance Allowance:** The monthly maintenance allowance corresponds to the basic value of 1 040,98 euros, , in accordance with the stipends values published by the Foundation for Science and Technology (FCT I.P.) in the country (Annex I – Monthly Stipends Values for the maintenance allowances of the FCT Regulation for Research Studentships and Fellowships) and Annex II of the Regulation of Scientific Research Fellowships of the University of Minho (RBIC), published in “Diário da República”, 2nd serie, n° 119, through dispatch n° 6524/2020 of 22-06-2020, ratified by ratification declaration n° 447/2021 of 22-06-2021, according to the applicable regulation.

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

Other benefits: Reimbursement of the Voluntary Social Insurance, corresponding to the 1st tier of the contribution base (for scholarships of 6 months or more) and Personal Accident Insurance. Payments are made by bank transfer to the account identified by the scholarship holder.

12. Exclusivity regime:

The grantees will perform the activities under exclusivity, as foreseen in article 5° of the Research Fellow Statutes and applicable regulations.



13. Composition of the selection jury:

President: José Pedro Miranda Mourão Patrício, Associate Professor with Habilitation, Departamento de Matemática da Escola de Ciências, Universidade do Minho

Effective members:

Gaspar José Brandão Queirós Azevedo Machado, Auxiliar Professor, Departamento de Matemática da Escola de Ciências, Universidade do Minho;

Ana Cristina Gomes da Cunha, Auxiliar Professor, Centro de Biologia Molecular e Ambiental, Escola de Ciências, Universidade do Minho.

Substitute members:

Lucile Arlette Guilaine Vandembroucq, Associate Professor, Departamento de Matemática da Escola de Ciências, Universidade do Minho;

Hernâni Varandas Gerós, Associate Professor with Habilitation, Centro de Biologia Molecular e Ambiental, Escola de Ciências, Universidade do Minho.

If the President of the Jury is unavailable, she shall be replaced by the first effective member. The first substitute member will replace the effective member.

The Jury, including the President, undertake the commitment to respect a set of responsibilities essential to the evaluation process, such as the duties of impartiality, of stating any potential situations of conflict of interest and confidentiality.

14. Evaluation and Selection Process: The evaluation of the applications will focus on the merit of the applicant (MC), by applying the following criteria on a scale of 1 (insufficient) to 5 (excellent):

A. Merit of the applicant (MC)

A.1: (30 per cent) The candidate's academic record, in which his/her performance in relevant degrees and courses in the area of the call and the work to be carried out will be assessed.

A.2: (40%) Knowledge, experience and interest in the areas indicated, referring to his/her computer implementation skills with relevance to the preferential conditions relating to the knowledge/experience and work plan indicated above.

A.3: (30%) Motivation letter, which will analyse the clarity, relevance and alignment of the candidate's objectives with the theme of the project.

The classification of the Candidate's Merit (MC) will be determined using the following formula:

$$MC = (A.1 \cdot 0.3) + (A.2 \cdot 0.4) + (A.3 \cdot 0.3)$$

The jury may also decide not to assign the Scholarship if none of candidates meets the minimum required conditions (final grade above 4). Documents proving the ownership of academic degrees and diplomas, or their respective recognition when foreign higher education institutions have awarded them may be dispensed with at the application stage, being replaced by a declaration of honour by the candidate, with the verification of this condition occurring only in phase of contracting the scholarship. This statement must attest facts that occurred on a date prior to the application. In situations of divergence between the information contained in the declaration and the documentation submitted for the purpose of contracting a grant, only the information contained in the latter will be considered. If it is verified that the documents proving the ownership of the academic degree and diploma, or the respective recognition under the terms of Decree-Law No. 66/2018, of August 16, do not correspond to the classifications awarded in the evaluation of the academic path and may, consequently, changing the candidate's ranking, the scholarship will not be contracted.

Note: 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 jury will assign the minimum grade in the grade of the degree and/or master's course, according to the defined scale of values. of a higher education institution, in the area or area related to that requested in notice.

- 15. Communication of results:** The evaluation results project, based in the selection panel minutes, will be send to the applicants by email, in accordance with article 13 of UMinho's RBIC.
If case of unfavourable results, the candidates have a period of 10 working days to comment, if desired, in a prior hearing to interested parties, pursuant to articles 121 and 122 of the Code of Administrative Procedure (DL n° 4 / 2015 of January 7th).
- 16. Complaint and appeal procedures:** The final results of the evaluation will be publicized through an ordered list (alphabetically, by final grade obtained), by email to all candidates, attaching, for that purpose, the minutes with the deliberations of the jury. The selected candidate must state in writing their intention to accept the scholarship. In case of non-acceptance, the scholarship will be awarded to the next candidate in order of final ranking, provided the final grade remains above 3. A complaint may be filed against the final decision, within 15 working days, addressed to the President of the Jury. Interested parties may also present an optional hierarchical appeal, addressed to the Vice-Rector for Scientific Projects and Research Management, Professor Dr. Sandra Paiva.

17. Deadline for application and form of submission of applications:

The application is open from 4 - 17 of July, 2025.

Applications must be formalized, obligatorily, through the following documents: i) Detailed curriculum vitae (pdf form), including the telephone and email contacts of the candidate; ii) official academic degrees certificates or declaration of the candidate; iii) Detailed list of grades (pdf format); iv) Motivation letter explaining the interest in the position (pdf format). All documents must be submitted in PDF format.

Applications must be sent by email to **pedro@math.uminho.pt**, indicating the reference of the competition B11.3/ STrengthS4WineChaiN – CMAT/2025 in the subject line. Applications sent through other means will not be accepted.

18. Fellowship contractualization:

The fellowship will be attributed by signing a fellowship contract between the University of Minho and the fellow, accordingly with the contract minute (annex IV of the Regulation of Research Fellowships of the University of Minho (RBIC), published in Diário da República, 2nd Série, n° 119, through dispatch n° 6524/2020 of 22-06-2020, ratified by ratification declaration n° 447/2021 of 22-06-2021, as indicated in 2.4 of the FCT document: "[Rules for Granting and Management of Grants within the scope of R&D projects, including infrastructure projects, the multi-annual financing program for R&D units and other FCT financing instruments \(Version 2021\)](#)".

The contract may only be concluded after all the documentation required is collected, which must take place within a maximum period of 6 months.

Once all the documentation has been received, the contracting entity has a period of 15 working days to conclude the scholarship contract, UMinho's RBIC, under the terms of n°2 of Article 15°. Once received, the fellow must return the contract duly signed within 15 working days.

The activities under the fellowship contract can only began after proper authorization by the contracting entity.

19. Term and cancellation of fellowship contracts:

Without prejudice to the other causes provided the fellowship regulations (FCT and UMinho) and in the Statute of the Research Fellow, the fellowship ends with the completion of the work plan, as well as with the expiration date for which it was granted or renewed.

At the end of the fellowship, the grantee is obliged to present a Final Report of the work carried out, in accordance with the objectives and evaluation criteria defined with the scientific advisor, within 30 days after the end of the scholarship.

The final report must be prepared in accordance with Annex I of the Scientific Research Fellowships Regulation of the University of Minho (RBIC), published in Diário da República, 2nd Série, n° 119, through dispatch n° 6524/2020 of 22-06-2020, ratified by ratification declaration n° 447/2021 of 22-06-2021.



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).

(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.

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

(Place), (date).

(full name)



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