

## ANNOUNCEMENT FOR THE AWARD OF A RESEARCH FELLOWSHIP

**Title:** Research Fellowship for Bachelors; 6 vacancy

**Reference:** CALG\_ATE\_BI\_2025\_01

A call for applications is now open for the attribution of 6 Research Fellowships for Bachelors for within the scope of the R&D project of ALGORITMI Center, ATE-Aliança para a Transição Energética, (Candidatura C644914747-00000023/56), financed by the Recovery and Resilience Plan (PRR) through the Agency for Competitiveness and Innovation – IAPMEI, I.P., under the following conditions:

**Scientific Area:** Power and Energy Electronic Engineering.

**Recipient category:** Bachelors, enrolled in a course:

- **Degree courses:** enrolled in an integrated master's/master's degree.
- **Non-conferring degrees courses:** enrolled in courses that do not award an academic degree.

Note: "Non-conferring degrees courses" are the courses referred to in paragraph e) of paragraph 3 of article 4 of Decree-Law no. 74/2006, of March 24, in its current wording."

### Requirement for granting the fellowship:

- The applicants may apply without prior registration in the course for which the fellowship is open. The requirement to enroll 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 enrollment in a degree course or non-academic degree course will be contracted, according to the type of the fellowship, indicating, respectively, the academic year or its duration (star and term).

### 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

### Candidate admissibility requirements:

- Candidates must hold, at the time of application, a bachelor's degree in Industrial Electronics and Computers Engineering.
- Candidates enrolled in a course that does not award a degree: Candidates who, at the time of signing the scholarship contract in question, including the renewals provided for in the notice, have exceeded an accumulated period of two years in this type of scholarship, whether consecutive or interpolated, are not eligible for the scholarship in this competition.
- Candidates enrolled in a course that awards a degree: Enrolment in a master's/integrated master's/doctorate in the area of Industrial Electronics and Computers Engineering.
- Proof of academic qualifications completed by the application deadline, including those resulting from academic degree recognition processes, is required at the contracting stage.
- Preferential factors:
  - Development and previous implementation of power electronics solutions, specifically for electric vehicle charging systems and green hydrogen production, including: (a) power electronics converters interfaced with the electrical grid; (b) signal acquisition and conditioning systems (AC and DC); (c) topologies of power electronics converters; (d) battery charging control algorithms; (e) current and voltage control techniques for power electronic converters; (f) previous work with PSIM or PLECS simulation software; (g) previous work with KiCAD, PADS or ALTIUM PCB design software; (h) DSP programming for power electronics converters.

**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 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, the candidate's declaration of honor (not applicable to research initiation grants);

**Applicants eligibility:** Applicants must comply with the eligibility conditions laid down in article 9 of the Research Grants Regulation of the Portuguese Foundation for Science and Technology (2019).

**Workplan and objectives to be achieved:**

- Development and implementation of power electronics converters for electric vehicle charging systems;
- Development and implementation of signal acquisition and conditioning systems for electric vehicle charging systems;
- Study of power electronics converters for electric vehicle charging systems;
- Study of control techniques for power electronic converters for electric vehicle charging systems;
- Development of PSIM and PLECS simulation software models for electric vehicle charging;
- Design of PCBs with PADS and ALTIUM software;
- DSP programming to drive power electronics converters for electric vehicle charging systems;
- Development of power electronics for electric mobility;
- Dissemination of results at conferences and scientific journals.

**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.

**Host/Contracting institution and scientific supervision:** The workplan will be carried out in the ALGORITMI Center, School of Engineering of University of Minho, located in the Azurém Campus, Guimarães, under the scientific supervision of Vítor Duarte Fernandes Monteiro, Assistant Professor at the Industrial Electronics Department, School of Engineering of University of Minho.

**Fellowship duration:** The grant will take place for a period of **3 months**, with a provisional starting date on the month of **August 2025**.

The scholarship may eventually be renewable, up to 2 years, in the case of a student enrolled in a master's program. For students enrolled in a non-degree-granting course, the scholarship is renewable for up to one year. Under no circumstances may it exceed the maximum period allowed by the project and/or provided for in the legislation and regulations in force.

**Amount of the research grant:** The value stipend (Monthly Maintenance Allowance) is **1 040.98 EUR /per month**, 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 Voluntary Social Security (Social Security contributions), 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:**

**President:** Vítor Duarte Fernandes Monteiro, Assistant Professor of the Department of Industrial Electronics of the School of Engineering of the University of Minho.

**Effective members:** João Luís Afonso, Full Professor of the Department of Industrial Electronics of the School of Engineering of the University of Minho and José Gabriel Oliveira Pinto, Assistant Professor of the Department of Industrial Electronics of the School of Engineering of the University of Minho.

**Substitute members:** Júlio Manuel Sousa Barreiros Martins, Assistant Professor of the Department of Industrial Electronics of the School of Engineering of the University of Minho and Manuel João Sepúlveda Mesquita Freitas, Assistant Professor of the Department of Industrial Electronics of the School of Engineering of the 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%):

**A.1:** Academic background, reflecting the area of study of the course and the classifications of the academic degrees (using tables A.1.1. and A.1.2. defined in the minutes of the criteria), with a weighting of **50%**;

**A.1.1:** Area of study of the course, with a weighting of 50%;

**A.1.2:** Classifications of the academic degrees, with a weighting of 50%;

**A.2:** Personal curriculum, relating to knowledge of power electronics solutions, specifically for electric vehicle charging systems and green hydrogen production, with a weighting of **40%**;

**A.2.1.** Power electronics converters with interface to the electrical grid - 10%;

**A.2.2.** Signal acquisition and conditioning systems (AC and DC) - 10%;

**A.2.3.** Power electronic converter topologies - 15 %;

**A.2.4.** Battery charging control algorithms - 15 %;

**A.2.5.** Current and voltage control techniques for power electronic converters - 15 %;

**A.2.6.** Previous work with PSIM or PLECS simulation software in the modeling of power electronic systems - 15 %;

**A.2.7.** Previous work with KiCAD, PADS or ALTIUM PCB design software in the design of power electronic systems - 10 %;

**A.2.8.** DSP programming for power electronic converters for power electronic systems - 10 %.

**A.3:** Motivation letter and/or other letters of recommendation, with a weighting of **10%**.

The final classification of the candidate's merit will be obtained by applying the following formula:

$$MC = (A.1 \times 0.5) + (A.2 \times 0.4) + (A.3 \times 0.1)$$

$$\text{Where } A.1 = (A.1.1 \times 0.5) + (A.1.2 \times 0.5)$$

$$\text{Where } A.2 = (A.2.1 \times 0.1) + (A.2.2 \times 0.1) + (A.2.3 \times 0.15) + (A.2.4 \times 0.15) + (A.2.5 \times 0.15) + (A.2.6 \times 0.15) + (A.2.7 \times 0.1) + (A.2.8 \times 0.1)$$

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.

The academic degrees and diplomas documents, or their respective recognition when awarded by foreign higher education institutions are not mandatory in the application phase, being replaced by a declaration of honor of the candidate with the contents of academic results. The documents of academic qualification or respective recognition will be required in the contracting phase and 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 contracting the grant, only the information contained in the latter will be considered. If 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, which can change the candidate's ranking, the fellowship won't be contracted.

**Notes:** 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.

**Disclosure of results:** The evaluation results project, based in the selection panel minutes, will be sent to the applicants by email, in accordance with article 12 of the FCT's RBI (FCT funding) | article 13 of UMinho's RBIC (other funding subject to UMinho regulations).

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). The hearing of the interested parties, if excluded, should be justified accordingly with article 124° of CPA.

**Complaint and appeal procedures:** The final results of the evaluation will be published through an ordered list (alphabetically, by final grade obtained), posted in a visible and public place of the host unit, as well as by email to all applicants, enclosing for that purpose, the minutes of the jury deliberations.

The selected candidate must inform its willingness to accept the grant, in writing. In case of rejection, the fellowship will be awarded to the next candidate in the ordered list of applicants.

The final decision can be contested within 15 working days, by sending to the President of the jury the corresponding claim. Interested parties may also submit an optional hierarchical appeal, addressed to the Pro-Rector with delegated competences in this area.

**Application deadline and submission:** The competition is open from **30/05/2025 to 16/06/2025**.

Applications must be formalized by sending an application letter with the following documents: curriculum vitae; qualifications certificate or declaration of the applicant; motivation letter; statement proving that meets the conditions for the grant typology, according to the application requirements; other documents important to the evaluation process).

Applications must be sent by email to **recrutamento@algoritmi.uminho.pt**, indicating the reference of the call for applications in Subject. Applications submitted by other means will not be accepted.



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**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 [including evidences of the academic degrees or diplomas and enrolment in degree courses or non-conferring courses, depending on the type of scholarship].

Once all the documentation has been received, the contracting entity has a period of 60 working days to conclude the scholarship contract (in the case of scholarship contracts under UMinho's RBIC, the deadline is 15 working days, 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.

**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).

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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.

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

(Place), (date).

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(full name)