



ANNOUNCEMENT FOR THE AWARD OF A RESEARCH FELLOWSHIP

Title: *Research Fellowship - ATE; 2 vacancies*

Reference: ATE_BI_2023_02_CALG (2)

A call for applications is now open for the attribution of two Research Fellowships within the scope of the R&D project of ALGORITMI Center, ATE-Aliança para a Transição Energética, reference PRR - C644914747-00000023, 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: Students enrolled in a PhD programme, or a master programme, or enrolled in non-academic degree courses integrated into the educational project of the institution, developed in association or cooperation with one or more R&D units, in the scientific area for which the call is open or related areas.

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, issued by the academic services of the Higher Education Institution, indicating, respectively, the academic year or its duration (start and term).
- Enrollment in non-certified courses (without curricular units) will not be considered as proof of enrollment.

Candidates profile:

- Candidates must have at the date of application, a master or bachelor's degree in industrial Electronics and Computers Engineering, or related areas. It is required for contractualization, proof of academic qualifications completed at the deadline for applications, including those resulting from academic degree recognition processes.
- Candidates enrolled in non-conferring degree course: cannot benefit from this scholarship candidates who, with the conclusion of the scholarship contract in question, including renewals, exceed a cumulative period of two years, followed or interpolated, in this type of scholarship;
- Preferential Requirements: Development and previous implementation of power electronics solutions for electric mobility, specifically for electric vehicle charging systems, including: (a) power electronics converters interfaced with the electrical grid; (b) signal acquisition and conditioning systems (AC and DC) for electric vehicle charging systems; (c) topologies of power electronics converters for electric vehicle charging systems; (d) battery charging control algorithms for electric vehicle charging systems; (e) current and voltage control techniques for power electronic converters for electric vehicle charging systems; (f) previous work with PSIM or PLECS simulation software in modeling electric vehicle charging systems; (g)



previous work with PADS or ALTIUM PCB design software in the design of electric vehicle charging systems; (h) DSP programming for power electronics converters for electric vehicle charging systems.

Preference will be given to candidates with a master's degree, candidates with a bachelor's degree will only be hired if there's no candidates with master's degree or, if the master's candidates doesn't have the intended training and/or do not have the experience mentioned above.

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 systems;
- 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 no. 40/2004 of August 18, in its current version published by Decree-Law no. 123/2019 of August 28; Regulation of Scientific Research Fellowships of the University of Minho (RBIC), published in "Diário da República", 2nd serie, no. 119, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 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 the Doctor Vítor Duarte Fernandes Monteiro.

Fellowship duration: The grant will take place for a period of 12 months, with a provisional starting date in June of 2024. In case of PhD or MSc students, the fellowship grant may eventually be renewed up to the maximum duration allowed in the project and/or by the legislation and regulations in force for this type of scholarship.

Amount of the research grant: The value stipend (Monthly Maintenance Allowance) is 1.259,64€ per month for a master degree holder, or 990,98€/month for a bachelor degree holder, 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, no. 119, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021, according to the applicable regulation.



Payment is made on the 23st 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 5° of the Research Fellow Statutes and applicable regulations.

Selection panel: The selection panel has the following composition:

President: Doctor Vítor Duarte Fernandes Monteiro (Assistant Professor at the Industrial Electronics Department, School of Engineering of University of Minho).

Effective members: Doctor João L. Afonso (Full Professor at the Industrial Electronics Department, School of Engineering of University of Minho) and Doctor José Gabriel Oliveira Pinto (Assistant Professor at the Industrial Electronics Department, School of Engineering of University of Minho).

Substitute members: Doctor Júlio Manuel Sousa Barreiros Martins (Assistant Professor at the Industrial Electronics Department, School of Engineering of University of Minho) and Doctor Manuel João Sepúlveda Mesquita Freitas (Assistant Professor at the Industrial Electronics Department, School of Engineering of 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. Academic path (considering the classifications of academic degrees), with a weighting of 50%;
 - 1. Final grade(s) of academic course(s), with a weighting of 50%;
 - 2. Course Scientific area, with a weighting of 50%;
- B. Personal curriculum (considering professional and scientific background), with a weighting of 40%
 - 1. power electronics converters interfaced with the electrical grid - 10 %;
 - 2. signal acquisition and conditioning systems (AC and DC) for electric vehicle charging systems - 10 %;
 - 3. topologies of power electronics converters for electric vehicle charging systems 15 %;
 - 4. battery charging control algorithms for electric vehicle charging systems - 15 %;



5. current and voltage control techniques for power electronic converters for electric vehicle charging systems - 15 %;
6. previous work with PSIM or PLECS simulation software in modeling electric vehicle charging systems - 15 %;
7. previous work with PADS or ALTIUM PCB design software in the design of electric vehicle charging systems - 10 %;
8. DSP programming for power electronics converters for electric vehicle charging systems - 10 %

C. Motivation letter, with a weighting of 10%.

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

$$AM=(Ax0,5)+(Bx0,4)+(Cx0,1),$$

$$\text{where, } A=(A.1\times0,5) + (A.2\times0,5)$$

$$\text{and, } B= (B.1\times0,1) + (B.2\times0,1) + (B.3\times0,15) + (B.4\times0,15) + (B.5\times0,15) + (B.6\times0,15) + (B.7\times0,1) + (B.8\times0,1)$$

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 3 positions that obtained at least 3 values on MC classification, will be admitted to the Interview phase, in which the Jury will evaluate the following sub-criteria:

Interview – ENT (30%):

- E.1: Interpersonal skills(30%).
- E.2: Demonstrated knowledge in the area of the competition(40%).
- E.3: Motivation (20%)
- E.4: Language skills (10%).

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

$$ENT=(E.1*0,3) + (E.2*0,4) + (E.3*0,2) + (E.4*0,1)$$

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

$$CF = (AM*0,7) + (ENT*0,3)$$

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 consider. 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 provisional results of applications, based in the selection panel minutes, will be send to the applicants by email until 90 working days from the applications deadline.

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 no. 4 / 2015 of January 7th).

[The hearing of the interested parties, if excluded, should be justified accordingly with article 124º 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.

Interested parties may also appeal against the final decision, pursuant to paragraph 3 of Article 13 of the Regulation of Research Fellowships of the University of Minho in its current wording | paragraph 6 of Article 12 of the Regulation of Research Fellowships of the FCT in its current wording.

Application deadline and submission: The call for applications is open from **2024/04/15** till **2024/05/03**.

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.

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, no. 119*, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 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. 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, no. 119*, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021.



ANNEX:



Declaration of Honor Academic habilitations

(name), applicant to the research fellowship vacancy under the I&D project (title or reference), published in the Euraxess portal, reference xxx, hereby declares to have a degree on **XXXX (name of the course)**, concluded in the **University of XXXX**, on the **XX/XX/XXXX**, with the final grade of XX.

I have submit my diploma for recognition in the **University of XXXX**, according to the Decree-Law n° 66/2018 of August 16th, concluded In the **XX/XX/XXXX**, with the final grade of XX.

I further declare that I undertake to present proof of my diploma recognition obtained under the Portuguese Law, until the date of the conclusion of the fellowship contract, in case of being selected for the vacancy in this competition.

As this is true, this declaration will be dated and signed by me.

(Place), (date).

(name)

¹ DGES (Foreign Degrees and Diplomas): <https://www.dges.gov.pt/en/pagina/degree-and-diploma-recognition?plid=1536>; University of Minho: Recognition of foreign degrees and diplomas: <https://www.uminho.pt/EN/education/Pages/recognition-of-foreign-qualifications.aspx>



Declaration of Honor Requirements Grant Typology

(name), applicant to the research fellowship vacancy under the I&D project (title or reference), published in the Euraxess portal, reference **(fellowship Reference)**, hereby declares that complies with the conditions for the type of scholarship of the referred call, reference above, in accordance with the application requirements, legislation and regulations indicated in the notice.

As this is true, this declaration will be dated and signed by me.

(Place), (date).
