



ANNOUNCEMENT FOR THE AWARD OF A POST-DOCTORAL RESEARCH FELLOWSHIP

Title: Post-Doctoral research Fellowship; 1 vacancy

Reference: O3F_BI_2023_10_CALG

A call for applications is now open for the attribution of one grant of Post-Doctoral Research Fellowship within the scope of the R&D project, of Algoritmi Center, PCIF/GRF/0141/2019,, financed by national funds (PIDDAC) through FCT - Foundation for Science and Technology, I.P. /MCTES under the following conditions:

Scientific Area: Optimization and Operational Research

Recipient category: The BIPD are intended for **doctorates** in the area of in the scientific area for which the call is open or related areas, who cumulatively meet the following requirements:

- Holders of a PhD degree obtained in the three years prior to the date of submission of the fellowship application***;
- Have carried out the research work that led to the attribution of a PhD degree in an entity other than the host unit Algoritmi Center **;
- Do not exceed, with the conclusion of the contract in question, including possible renewals, a cumulative period of three years in this type of fellowship, consecutive or interpolated.

Candidates who do not cumulatively meet the requirements described will be excluded.

** Different R&D Units are included, even if located in the same Organic Unit (UOEI) of UMinho (no. 4 and 5 of article 7 of the FCT I.P Research Grant Regulation, in force)

***Documents proving the ownership of academic degrees and diplomas, or their respective recognition when they have been awarded by foreign higher education institutions, when applicable for the type of scholarship in the call for applications, may be waived at the application stage, being replaced by declaration of honor of the candidate, with the verification of this condition occurring only in the 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 the 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, change the candidate's ranking, the fellowship contracting will not be done.

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:

One of the issues addressed in the O3F project is the pre-positioning of resources (e. g. ground vehicles, helicopters, drones) in rural firefighting. In this problem it is intended that the resources are positioned in such a way that, ideally, the initial attack on any ignition is successful as early as possible. In its base version, this problem can be modeled as a location optimization problem.

With this work it is intended to develop optimization models and methods (exact and heuristic) and test them on one of the project's case studies based on real data.

The activities to be performed are:

1. Literature review on resource localization for rural firefighting.
2. Characterization of demand, and quantification of the relative importance of each point to be covered taking into account different objectives (e.g. minimizing burned area and protection of sensitive points) and the uncertainty of the ignition locations. This characterization will be done based on scenarios and models of fire spread already developed within the project.
3. Design of a mixed integer programming model.
4. Design of a heuristic method.
5. Implementation of the approaches described in 3 and 4 in the project's framework: PyO3F (Python wildfire optimization framework).
6. Conducting computational experiments on the project's case study based on real data.

The goal is the proposal of an approach to support decision making on a relevant problem. The main evaluation criterion is that the work is suitable for submission to a quality scientific journal.

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 series, 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 of School of Engineering of University of Minho, located in the Gualtar Campus, Braga, under the scientific supervision of the Filipe Pereira Pinto Cunha Alvelos (Associate Professor at the Department of Production and Systems, School of Engineering of University of Minho).

Fellowship duration: The grant will take place for a period of 6 months, with a provisional starting date on the **march of 2023**. The fellowship grant may eventually be renewed up to up to the maximum period allowed by the project and/or foreseen in the legislation and regulations in force for the type of scholarship.



Notes:

Amount of the research grant: The value stipend (Monthly Maintenance Allowance) is **1646 euros**, 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 series, 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 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: The selection panel has the following composition:

President: Doctor Filipe Pereira Pinto Cunha Alvelos (Associate Professor at the Department of Production and Systems, School of Engineering of University of Minho)

Effective members: Doctor Doutora Ana Maria Alves Coutinho Rocha (Associate Professor at the Department of Production and Systems, School of Engineering of University of Minho) and Doctor Lino António Antunes Fernandes Costa (Associate Professor at the Department of Production and Systems, School of Engineering of University of Minho)

Substitute members: Doctor Senhorinha Fátima Capela Fortunas Teixeira (Associate Professor at the Department of Production and Systems, School of Engineering of University of Minho) and Doctor José Carlos Fernandes Teixeira (Full Professor at the Department of Mechanical Engineering, 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.

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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 1 to 5 values:

Applicant Merit - AM (60%):

- a) Academic path (considering the classifications of academic degrees), with a weighting of 70%;



- b) Personal curriculum (considering professional and scientific background), with a weighting of 20%
- c) Motivation letter, with a weighting of 10%.

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

$$MC=(a*0,7)+(b*0,2)+(c*0,1)$$

A. Interview – ENT (40%):

1. Interpersonal skills (10%).
2. Demonstrated knowledge in the area of the competition (50%).
3. Motivation (30%)
4. Language skills (10%).

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

$$ENT=(B1*0,1) + (B2*0,5) + (B3*0,3) + (B4*0,1)$$

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

$$CF = (AM*0,6) + (ENT*0,4)$$

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.

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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.

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 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 for Research and Projects, Professor Sandra Paiva.

Application deadline and submission: The call for applications is open from **01/02/2023 until 14/02/2023**.

Applications must be formalized, mandatorily, by sending an application letter accompanied by the following documents: *curriculum vitae; certificate of qualifications or declaration of the candidate (if applicable); letter of interest; one letter of recommendation; document with the grades of the course units of the Masters's degree; other documents considered relevant to the assessment of the scientific and professional path.*

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 doctoral degree or its recognition in Portugal, under Decree-law no. 66/2018 of august 16th].

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)



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).
