



**NOTICE OF OPENING OF AN INTERNATIONAL SELECTION PROCEDURE FOR THE RECRUITMENT OF AN ASSISTANT
RESEARCHER**

1. By order of 03-09-2021, the Dean of FEUP, Professor João Bernardo de Sena Esteves Falcão e Cunha, was deliberated to open an international selection procedure for the recruitment of 1 position for the category equivalent to Assistant Researcher within the scope of Project **REMARO on Reliable AI for Marine Robotics** funded by European Commission - Marie Skłodowska-Curie Actions (MSCA) training network for PhD fellows, in the form of an Uncertain Term Employment Contract never exceeding the maximum limit of four years, under the Labor Code in its current version and Regulation nº 487/2020, of 22 May - Regulation of Research, Science and Technology Staff of the University of Porto, in its current wording.

REMARO is an European consortium composed by a team of experienced researchers in marine robotics, AI, software testing and verification opening a PhD position with research topics on reliable autonomy for underwater applications. Nine academic research labs and five companies from five countries operate the network supported by a prestigious Marie Skłodowska-Curie grant from the European Commission. Autonomous robotics underwater is still a dream. Most robots are remotely controlled and need complex infrastructure. The objective of REMARO is to make underwater robots more autonomous.

The aim of this project is to develop a distributed AI system for multiple underwater and surface vehicles to find, track and sample physical, chemical, and biological features of the ocean with adaptive spatial-temporal resolution on time-space scales not previously possible by ship or aircraft studies alone.

2. Functions to perform: the Assistant Researcher executes, develops and participates in research and development projects, under the guidance of a researcher or professor. The Assistant Researcher will be part of the project team executing and developing the following activities of Position (#6): Finding, tracking and sampling dynamic features of the ocean with Autonomous Underwater Vehicles:

2.1. To familiarize with current state-of-the-art in the fields of (1) networked robotics, (2) distributed artificial intelligence systems, (3) observation of dynamic features of the ocean (e.g., ocean fronts), (4) AI-based learning of dynamic features of the ocean using physics-based models and remote sensing data, (5) software frameworks for networked underwater and surface autonomous vehicles.



2.2 To develop novel solutions to learn dynamic features of the ocean from remote sensing data as well as from in-situ observations.

2.3. To develop AI-based systems for an autonomous vehicle to learn, find, track and sample dynamic features of the ocean based on learned models and in-situ measurements of essential ocean variables.

2.4. To develop AI-based systems for a team of autonomous vehicles to learn, find, track and sample dynamic features of the ocean based on learned models and in-situ measurements of essential ocean variables.

2.5. To deploy the AI-based systems on networked autonomous underwater and surface vessels for the evaluation and testing of the approach in an oceanographic field experiment.

Planned secondment(s): This researcher will work closely with OceanScan Marine System & Technology Lda (OMST) in a two-desk (50/50) arrangement thanks to geographical proximity (a highly integrated secondment). The formal secondment at OMST will take place fulltime for 2 months.

Goal: Research–industry collaboration on active perception for oceanography applications Outcome: Identification of biogeochemical signatures of dynamic features of the ocean and dissertation. The concrete immediate outcome of the secondment will be an internal requirements analysis report and overview of the available data sets at OMST, summarized in training progress report for monitoring.

Mobility period with TUD (Delft University of Technology), Prof. Corbato for 3 months within m24–28. Goal: Modeling meta-control for the oceanography case study regarding identification of biogeochemical signatures of dynamic features of the ocean and meta-control for reliable autonomous operation of underwater robots summarized in training progress report for monitoring.

3. According to article 22^o of the Regulation 487/2020, the jury is composed as follows:

President: Prof. João Borges de Sousa (FEUP | LSTS)

Member: Prof. Andrzej Wąsowski (wasowski@itu.dk), Coordinator (IT University of Copenhagen)

Member: Prof. Maria do Rosário Pinho (FEUP)

Substitute Member: Prof. Ana Madureira (ISEP | ISRC)

Substitute Member: Prof. Margarida Ferreira (FEUP)



4. Applicable Legislation: Labor Code, Law on 7/2009, of 12 February, in its current version and Regulation nº 487/2020, of 22 May - Regulation of Research, Science and Technology Staff of the University of Porto, in its current wording.

5. The work will be developed in the Underwater Systems and Technologies Lab at the Faculty of Engineering of the University of Porto LSTS - FEUP.

6. The monthly remuneration to be attributed corresponds to the 2st remuneratory position, level 4, provided in Annex I and Annex II, of the Regulation nº 487/2020, of 22 May - Regulation of Research, Science and Technology Staff of the University of Porto, in the amount of € 1.979,78 Euros, on full time.

In addition to the monthly remuneration, according the Annex 2 of the Grant Agreement "Estimated budget for the action", the following will also be awarded:

- Mobility allowance: € 600/month
- Family allowance: € 500/month (subject to family situation)

These amounts are gross amounts, subject to taxation according to Portuguese national law. Consequently, the net salary results from deducting all compulsory (employer and employee) social security contributions as well as direct taxes (e.g. income tax) and insurance from these gross amounts.

7. General admission requirements according the Article 6 number 6.2. point A al. b) of the Grant Agreement: The applicants must be national, foreign and stateless candidates holding a Master degree in any of the following fields: computer science, informatics, mechanical/electrical engineering, physics, mathematics, marine sciences or related fields, which constitutes the minimum admission requirement and holders of a scientific and professional curriculum vitae that reveals a profile appropriate to the activities to be developed.

The degree should have been completed in the last 5 years at most

If the Master's degree has been awarded by a foreign higher education institution, it must comply with the provisions of the Decree-Law no. 66/2018, of august 16th, and any formalities established there must be fulfilled until the time of signing the contract.

Special admission requirements: In order to determine the profile appropriate to the activity to be developed, the following criteria are defined:

- a) Candidates must have competences and previous experience in some of the following fields:



- Deep Learning, AI Safety, safety engineering patterns to mitigate risks, image analysis and vision-based navigation, combined with willingness to work on current systems.
- b) The candidate must have strong analytical skills and be able to work at the intersection of science and technology.
 - c) The candidate should have experience in one of the following programming languages: C/C++ and/or Python.
 - d) Experience with robotic operations and/or with the Robot Operating System (ROS) or with the LSTS software toolchain is a plus. Proficiency in written and spoken English is also required.
 - e) Proficiency in written and spoken English is also required.

According to al. b) of point A of no. 6.2 of article 6 of the Grant Agreement, the Formal Requirements for this position are:

- At the time of the recruitment the researcher must be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree;
- Mobility Rule: At the time of the recruitment researchers shall not have resided or carried out their main activity (work, studies, etc.) in Portugal for more than 12 months in the 3 years immediately prior to the appointment (compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account);
- 'Date of Recruitment' means the first day of the employment of the researcher (i.e. contract starting date) and 'Full-Time Equivalent Research Experience' is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctoral degree programme;

8. Conditions of award of the position: After this selection procedure it is mandatory to apply to FEUP's Doctoral Program in Electrical and Computer Engineering respecting the following procedure:

- Access conditions and seriation criteria: Information for applications - PDEEC 2021/2022 (short link: <https://s.up.pt/n2di>)
- List of documents for admission to the study cycle: PDEEC Docs candidatura/application 2021/2022 (short link: <https://s.up.pt/7zf8>)

Signing the contract implies enrolling and attending the Doctoral Programme selected at FEUP.



The contract will only be signed after the confirmation of this last phase.

9. Selection Criteria: In terms of the article 26 of the Regulation nº 487/2020, of 22 May - Regulation of Research, Science and Technology Staff of the University of Porto, the selection is made through the evaluation of the scientific and curricular career of the candidates, complemented by an interview (E), in accordance with point 11 and 12 of the present announcement.

10. The evaluation of the scientific and curricular path, taking into account the profile appropriate to the activity to be developed, focuses on relevance, quality, and current impact of:

- a) scientific, technological, cultural or artistic production of the last five years considered to be more relevant by the applicant to the recruitment area and the applied research activities, or based on practice considered to be more relevant by the applicant to the recruitment area;
- b) activities of extension and dissemination of knowledge in particular in the context of culture and scientific practices promotion that are considered by the candidate to be of greater relevance; and the activities of management of science, technology and innovation programs, or the experience in observing and monitoring the scientific and technological system.

11. The Evaluation of the Scientific Career and Curriculum Vitae (ESCC), scored on a scale of 0 to 100 points, focuses on parts described below:

1. Scientific Career and Curriculum (SCC)

Assessment of the relevance, quality and current impact of scientific career and curriculum. This evaluation focuses on the parameters described below and the classification is obtained by: $SCC = 0,9 SC + 0,1 RA$.

1.1 Scientific Production (SC)

Assessment of the scientific production (SC), over the last five years. The classification is obtained by: $SC = 0,6 SCV + 0,4 SCQ$.

Quantitative Evaluation (SCV): publications in ISI journals, in the area of preference (computer science, informatics, mechanical/electrical engineering, physics, mathematics, marine sciences), SCV = up to 100 points; publications in related areas, SCV = up to 60 points; publications in other areas, SCV = 0 points.

Qualitative Evaluation (SCQ): the candidate must provide copies of up to 5 articles considered to be most relevant, SCQ = up to 100 points.

1.2 Extension and dissemination of knowledge Activities (RA)



Evaluation of Extension and dissemination of knowledge Activities, developed in the last five years. This parameter includes (i) participation in R&D projects, services, and technology transfer and (ii) participation in science management and knowledge dissemination activities, including the organization of conferences, symposia, and scientific cooperation activities. Activities in the area of preference, RA = up to 100 points; activities in related areas, RA = up to 60 points; activities in other areas, RA = 0 points.

12. The selection process includes a professional interview (PI), which exclusively intend for the clarification of aspects relates to the results of their research, for the candidates with an Evaluation of the Scientific and curriculum Vitae (ESCC) exceeding 80 points. The (PI) will be classified on a scale of 0 to 100 points.

13. The final grade is the sum of the classifications obtained in the Evaluation of the Scientific and Curriculum Vitae (ESCC) and professional interview (PI) (0.9 ESCC + 0.1 PI). The position can only be filled by candidates whose final classification is equal or greater than 80 points.

14. **Notice for the selected candidate:** If the selected candidate for the job position obtained a higher education degree abroad, and in order to sign the employment contract and enrol in the Doctoral Programme, he/she might be required to deliver the academic transfers and degree certificates authenticated by consular offices or embassies of Portugal located in the country where the qualification was obtained, or hold the Hague Apostille, for countries that acceded to the Hague Convention. The same applies to the translations (mandatory) of documents whose original language is not Portuguese, Spanish, French or English.

If the degree has been awarded by a foreign higher education institution, it must comply with the provisions of the Decree-Law no. 66/2018, of august 16th, and any formalities established there must be fulfilled until the time of signing the contract.

15. The results The results of the evaluation will be released to the candidates by email to the email address indicated in the application process.

16. The jury shall deliberate by means of a nominal vote based on the selection criteria adopted and published, and abstentions are not allowed.



17. Minutes of the meetings of the jury are drawn up, containing a summary of what has taken place in the meetings, as well as the votes cast by each of the members and their reasons; these minutes should be available to candidates whenever requested.

18. The call is open from **12-10-2021 to 25-10-2021** (until 23h59m, local time).
Applications must be formalized via email to recursoshumanos@fe.up.pt and to sas.lsts@fe.up.pt and should clearly state the reference FEUP-REMARO.
The application must include: complete name, number and date of the identity card, tax identification number, date and location birth, residence and contact address, including e-mail and telephone contact.

19. The application shall be accompanied by the following documents:
 - a) Copy of the certificate or diploma;
 - b) Detailed Curriculum Vitae;
 - c) One motivation letter;
 - d) Copy of the 5 most relevant publications;
 - e) Certificate (Transcript) of the higher education institution listing the curricular units in which you got a passing grade, indicating the regime (semester/year) and the number of credit units/ECTS. (mandatory);
 - f) Two recommendation letters. The persons who write the recommendation letters should know the candidate well, know the candidate long enough to write with authority, know the candidate work and the candidate educational and career goals.
 - g) Declaration of honour regarding the residency for the last three years (model Bellow)
 - h) Documents proving professional experience;Failure to submit the requested documents implies exclusion from the selection process.

20. Candidates who formalize their application incorrectly or do not prove the general requirements specified in this notice are excluded from admission to the competition. The jury has the power to require any candidate, in case of doubt, to present documents proving their statements.

21. False statements by candidates shall be punished in accordance with the law.

22. Preliminary Hearing and deadline for the Final Decision: in accordance with article 121 of the



Code of Administrative Procedure, after being notified, the candidates have 10 working days to pronounce. Within a maximum period of 90 days from the deadline for submitting applications, the final decisions of the jury are given.

The present competition is exclusively aimed at filling the indicated vacancy and may be terminated until the homologation of the final ranking list of the candidates and expires with the respective occupation of the job position on offer.

23. Non-discrimination and equal access policy: FEUP actively promotes a policy of non-discrimination and equal access, so that no candidate can be privileged, beneficiary, disadvantaged or private of any right or exemption from any duty owing, in particular, 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 beliefs and trade union membership.

24. The selection boards approved this notice at the meeting held on 06-09-2021.

25. Under the terms of D.L. No. 29/2001, of February 3rd, the disabled candidate has preference in equal classification, which prevails over any other legal preference. Candidates must declare their respective degree of incapacity, the type of disability and the means of communication / expression to be used in the selection process, under the terms of the aforementioned diploma.

Model of Declaration of Honour¹

(mobility rule):

I, ... (*name of candidate*), hereby declare that at the time of recruitment – that will take place from September 2021 - have not resided or carried out my main activity (work, studies, etc.) in ..., ..., ... (*countries of the institutions that you are applying to*) for more than 12 months in the 3 years immediately prior to the time of recruitment.

Date:

Signature:



¹ Short stays such as holidays and/or compulsory national service are not taken into account.