



3 POST-DOCTORAL RESEARCH SCHOLARSHIPS (M/F)

An open call is currently underway for the awarding of 3 (three) Post-Doctoral Research Scholarships, under the Programmatic Funding - UIDP/00147/2020 of the Research Unit - Systems and Technologies Center - SYSTEC - funded by national funds through FCT/MCTES (PIDDAC).

SCIENTIFIC AREA

Mathematics, Applied Mathematics, Computer Science, or related fields.

ADMISSION REQUIREMENTS

This post-doctoral research scholarship can only be awarded if the following requirements are met cumulatively:

- The doctoral degree in Mathematics, Applied Mathematics, Computer Science, or related fields was obtained within the three years prior to the date of application submission for the scholarship.
- The post-doctoral research will be carried out in a host institution different from the institution where the research leading to the doctoral degree was conducted.
- The total duration of the scholarship, including possible renewals, does not exceed three years in this specific scholarship category, consecutively or in an interpolated manner.

If the degree was awarded by a foreign higher education institution, it must comply with the provisions of Decree-Law no. 66/2018, dated August 16th. Any formalities established therein must be fulfilled by the application deadline.

WORKPLANE

The scholarship holder will be integrated into the research team of the Systems and Technologies Research Center (SYSTEC) and will contribute to ongoing activities with the following main objectives:

- Conduct fundamental research and development in systems, control, optimization, estimation, robotics, and the integration of these disciplines in cyber-physical system architectures for networks of systems and vehicles, energy management with an emphasis on renewable integration and mobility in the grid, and production systems. These developments aim not only to have an impact in these areas but also to address societal challenges in academic, nature and environment, industry, services, and entrepreneurship contexts.



- Contribute to the valorization and knowledge transfer to society.

To ensure an efficient achievement of the objectives of the SYSTEC Research Unit, it is organized to facilitate dialogue with various stakeholders, taking into account the evolving challenges of society through four Intervention Vectors:

- **CONTROL:** Systems, control, optimization, estimation, and data science. This activity focuses on fundamental research in areas such as optimal control theory, optimization-based control, application-driven control strategies, modeling and estimation, large-scale distributed and structured systems. Scientific challenges are inspired by application contexts, involving the development of estimation, optimization, and control algorithms and prototypes for a wide range of applications, including healthcare, quality of life, and agriculture.
- **NET:** Systems and technologies for networked robotic vehicles and devices. This vector is highly interdisciplinary and requires a robust fundamental basis, combining developments in system theory, control, optimization, hybrid systems, verification, accessibility, control system networks, and computational architectures for deliberative capabilities and mobile robotics. The objective is to develop, promote, and transfer advanced engineering systems and technologies with a special focus on scenarios involving networked operations of multiple robotic vehicles (teleoperated and autonomous) in aerial, underwater, and surface domains.
- **ENERGY:** Intelligent systems and energy and mobility technologies. This vector addresses the challenges arising from concepts and technologies related to renewable generation systems, electric propulsion systems, distributed intelligent energy systems, and the incorporation of power electronics technologies into all energy systems to leverage renewable energy sources and optimize energy utilization by society.
- **MANUFACTURING:** Cyber-physical systems for manufacturing. This vector focuses on the design, implementation, and validation of intelligent components for advanced manufacturing systems that introduce intelligence into industrial processes and contribute to the emergence of future factories, implementing new approaches related to cyber-physical production systems.

These Intervention Vectors reflect the areas of research and development within the SYSTEC Research Unit and provide a framework for the post-doctoral research activities to be carried out.

LEGISLATION AND APPLICABLE REGULATIONS

The competition is governed by the present Call for Applications, the Research Fellowship Regulation of FCT (Portuguese Foundation for Science and Technology), approved by Regulation No. 950/2019, published in the II Series of the Official Gazette on December 16, 2019, the Research Fellow Statute approved by Law No. 40/2004, dated August 18, in the current version, and other applicable national and community legislation.



WORKPLACE

The work will be carried out at the Institute of Systems and Robotics, under the scientific supervision of an Integrated Member of the SYSTEC Research Unit (<https://systec.fe.up.pt>), coordinated by Professor Dr. António Pedro Rodrigues Aguiar.

DURATION OF THE SCHOLARSHIP AND ACTIVITY REGIME

The scholarship will have a duration of 5 (five) months, with a planned start in July 2023, under an exclusive regime. It may be renewed for up to a maximum of 3 years, never exceeding the maximum duration of the project.

If the hiring procedures do not allow the scholarship to have a minimum duration of 3 consecutive months, as stated in Article 7(6) of the FCT Research Fellowship Regulation, the scholarship will not be awarded.

COMPONENTS OF THE SCHOLARSHIP

The scholarship holders are granted a monthly maintenance allowance of €1,741.00 (one thousand seven hundred and forty-one euros), according to the table in Annex I of the FCT Research Fellowship Regulation (RBI) (<https://www.fct.pt/apoios/bolsas/valores>). The scholarship may also include other components as specified in Article 18 of the RBI and their respective values outlined in Annex II.

All scholarship holders are covered by personal accident insurance for research activities, supported by the Institute of Systems and Robotics (ISR).

Scholarship holders who are not covered by any social protection scheme can ensure their right to social security by joining the voluntary social security scheme, in accordance with the Code of Contribution Regimes of the Social Security Previdential System. The ISR will cover the costs resulting from contributions in accordance with the limits and conditions set out in Article 10 of the EBI.

PAYMENTS OF THE SCHOLARSHIP COMPONENTS

Payments due to the scholarship holder will be made via bank transfer to the account specified by the scholarship holder. The monthly maintenance allowance will be paid on the 23rd day of each month, or on the previous business day if the 23rd falls on a weekend or holiday.

METHODS OF SELECTION

The selection of the scholarship holder will be based on a curricular evaluation focusing on the candidate's merit, as well as an interview with candidates whose score in the curricular evaluation is equal to or higher than 4 points.

The evaluation criteria for the curricular component are as follows:



Curricular evaluation score (AC) = 40% * AC1 + 30% * AC2 + 20% * AC3 + 10% * AC4

AC1 - Academic profile of the candidate: PhD in Mathematics, Applied Mathematics, Computer Science (5 points); PhD in related fields (3 points).

AC2 - Participation in R&D projects in a relevant area for the research project (5 points); Participation in R&D projects in related areas to the research project (2 points).

AC3 - Relevant publications (1 to 5 points).

AC4 - Motivation letter, assessing English proficiency and the candidate's motivation (1 to 5 points).

After the analysis of the submitted documentation, the Selection Committee will interview the top 4 candidates, evaluating:

Interview score (CE) = 50% * E-C1 + 25% * E-C2 + 25% * E-C3

E-C1 - Knowledge and motivation for the position:

Excellent knowledge and motivation - 4 to 5 points

Good knowledge and motivation - 2 to 3 points

Lack of knowledge or motivation - 0 to 1 points

E-C2 - Attitude (assessing the candidate's behavior in terms of teamwork, conflict management, persuasion, presentation, and confidence):

Excellent attitude - 4 to 5 points

Adequate attitude - 2 to 3 points

Inadequate attitude - 0 to 1 points

E-C3 - Verbal expression and fluency in Portuguese and/or English (coherence, clarity, vocabulary richness, comprehension, and interpretation of questions):

Very good expression, communication, or interpretation - 4 to 5 points

Good expression, communication, or interpretation - 2 to 3 points

Difficulty in expression, communication, or interpretation - 0 to 1 points

The final classification of interviewed candidates will be calculated based on the following criteria and weighting factors:

Final score (CF) = 60% * AC + 40% * CE

- Curricular evaluation score - weighting factor: 60%
- Interview score (1 to 5 points) - weighting factor: 40%

Candidates whose final score is lower than 4 (four) points are not eligible for the scholarship.



EVALUATION PANEL

Composition of the Evaluation Panel:

Chair: Professor António Pedro Rodrigues Aguiar

Effective Member: Professor Roman Chertovskikh

Effective Member: Professor Gil Manuel Magalhães de Andrade Gonçalves

Substitute Member: Professor Fernando Arménio da Costa Castro e Fontes

FORM OF PUBLICATION/NOTIFICATION OF RESULTS

The results of the evaluation will be disclosed via email to the email address provided during the application process.

CHOLARSHIP ELIGIBILITY REQUIREMENTS

The following documents must be submitted when the scholarship is potentially granted for the purpose of its contractualization:

- a) Copy of the document(s) or elements contained in the civil and fiscal identification documents;
- b) Copies of academic degree certificates held;
- c) Presentation of the recognition registration of foreign academic degrees and conversion of their final grades to the Portuguese grading scale, if applicable.

The granting of the scholarship is also subject to the following conditions:

- Compliance with the requirements set forth in this Call for Applications;
- The result of the scientific evaluation;
- No unjustified breach of duties by the scholarship holder under a previous scholarship contract funded directly or indirectly by FCT;
- Budget availability of the R&D Unit SYSTEC.

Failure to submit any of the necessary documents to complete the scholarship contractualization process within 6 months from the date of communication of the conditional grant decision will result in the expiration of the grant and the closure of the process.

APPLICATION DEADLINE AND APPLICATION SUBMISSION METHOD

This call is open from 01/06/2023 to 14/06/2023 (until 23:59 local time).



INSTITUTO DE SISTEMAS E ROBÓTICA
Pólo do Porto



REPÚBLICA
PORTUGUESA

CIÊNCIA, TECNOLOGIA
E ENSINO SUPERIOR



Fundação
para a Ciência
e a Tecnologia

Applications must be submitted, mandatory, via email to isrp@fe.up.pt and sas.isr@fe.up.pt, indicating the project reference in the subject line (**ISR-PROG-3BPD SYSTEC**), accompanied by the following documents:

- Proof of academic qualifications certificate;
- Detailed Curriculum Vitae;
- Motivation letter written in English;
- Declaration under oath stating compliance with the requirement mentioned in paragraph c) of the admission requirements (template below);
- Other documents considered relevant by the candidate.

To ensure the readability of all documents, the preferred file format for saving is the Portable Document Format (.pdf).



(MODELO)

DECLARAÇÃO SOB COMPROMISSO DE HONRA

Eu, _____ (*identificação do bolseiro*), portador do Cartão de Cidadão / Visto / Título de Residência n.º _____, válido até ____/____/_____, declaro sob compromisso de honra, nos termos da alínea e) do n.º 3 do artigo 7.º do Regulamento de Bolsas de Investigação da FCT, I.P. - Regulamento n.º 950/2019, de 16 de dezembro, que não excederei, com a celebração do contrato de bolsa em causa, incluindo as renovações possíveis, um período acumulado de três anos nesta tipologia de bolsa, seguidos os interpolados.

Porto, ____/____/____

(Assinatura do Candidato)