

**NOVA University of Lisbon**

**NOVA School of Science and Technology**

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Deadline:21/11/2024

**Opening of an international open competition for the recruitment of 1 Principal Researcher  
for a scientific research career on a private law basis**

Professor José Júlio Alves Alferes, Dean of the NOVA School of Science and Technology of NOVA University of Lisbon, under the powers delegated by Order no. 181/2023, of 4 January, makes it known that, by order of de 30/10/2024 of the Rector of NOVA University of Lisbon, Prof. João Sàágua is open, for a period of 15 working days from the day immediately following the publication of Notice in the Official Gazette, an international documentary competition, with internal reference “**Inv.Pri.2-DM**”, for the recruitment of an Principal Researcher, in the scientific area of Mathematics – Operations Research, under the terms of an open-ended individual employment contract, in accordance with Law no. 7/2009, of 12 February, which approves the Labour Code, with its successive amendments, and under the terms of Regulation no. 393/2018, of 28 June.

Position open under the FCT TENURE programme - 1st edition, with reference 2023.11076.TENURE.043, within the scope of the strategic objectives of the research unit - Center for Mathematics and Applications (NOVA Math), and whose researcher will become an integrated member of this Research Unit, and the line of funding to support the indefinite hiring of PhDs (OE 2024 additional funding programme to stimulate the hiring of researchers).

In compliance with paragraph h) of article 9 of the Constitution of the Portuguese Republic, NOVA University of Lisbon, as an employer, actively promotes a policy of equal opportunities between men and women in access to employment and professional progression, scrupulously providing in order to avoid any and all forms of discrimination. In this sense, terms such as "candidate", "selected", "recruited", "hired", "author", "researcher", among others that refer to the people applying for the competition, are not used in this Notice to refer to their gender.

**I - Workplace:**

The place of work will be at facilities of the NOVA School of Science and Technology of NOVA University of Lisbon, located on the Caparica Campus, in the Department of Mathematics and Center for Mathematics and Applications (NOVA Math).

The employee will make all the journeys, in Portugal or abroad, inherent to their duties or necessary to carry out their activity.

**II – Main functions and activities:**

The selected candidate will serve as a Principal Investigator at NOVA FCT and will carry out tasks related to the design, development, and execution of scientific research that aligns with the strategy of NOVA Math and the sustainable goals of the 2030 Agenda.

The selected candidate will be responsible for conducting cutting-edge research in the areas of Continuous Optimization, with a specific focus on Nonlinear Optimization, with or without constraints. The main tasks

include exploring nonlinear optimization strategies for data science and inverse problems in matrix spaces, and the development and analysis of innovative algorithms to compute high-quality solutions. The candidate will have the following responsibilities:

1. Design, analyze, and implement algorithms for large-scale continuous optimization problems;
2. Investigate new nonlinear optimization models with strong connections to data analysis and inverse matrix analysis problems;
3. Conduct cutting-edge research on nonlinear optimization;
4. Collaborate with interdisciplinary teams to integrate findings into broader research initiatives;
5. Actively engage in the activities of the research center, including the supervision of postdoctoral researchers;
6. Contribute to the publication of research findings in reputable scientific journals;
7. Stay abreast of the latest developments in Continuous Optimization and related fields.

### **III - Remuneration position and exclusivity:**

The initial positioning of the researcher under a private law regime within one of the salary levels of the category is subject to negotiation with the employer, in accordance with the researcher's profile and experience, as stipulated in Article 15 of Regulation No. 393/2018, of June 12. The Principal Researcher will be recruited on a full-time basis, which implies renouncing the exercise of any remunerated function or activity, whether public or private, including the exercise of a liberal profession, and the rules set out in article 52 will apply on a full-time basis under private law.

### **IV – Contracting modality**

The recruitment of the Principal Researcher in the form of an individual open-ended contract will take place under the terms of the Regulation on the careers, recruitment and employment contracts of researchers under an employment contract at NOVA University of Lisbon - Regulation no. 393/2018, of 28 June.

Everything not included in this notice will be referred to Regulation no. 393/2018, of 28 June.

### **V - Applicant admission requirements**

1. Under the terms of the Statute of the Scientific Research Career, approved by Decree-Law no. 124/99, of 20 April (ECIC), as amended, it is a general requirement to hold a doctoral degree and have a relevant scientific curriculum in the area of the competition.

National, foreign and stateless candidates who hold a doctoral degree in the scientific area of Applied Mathematics or a related field, with strong focus on Computational Mathematics and Large-scale Optimization may apply. If their qualifications were obtained abroad, they must provide proof of recognition, equivalence or registration of the degree, under the terms of the applicable legislation. This formality must be completed by the date the contract is signed.

2. Therefore, candidates should have a relevant scientific curriculum in the field of Applied Mathematics, with a strong focus on Computational Mathematics and Large-Scale Optimization.

## **VI – Application instructions**

1. The application must be instructed by filling in the respective application form, which is available at <https://www.fct.unl.pt/en/faculdade/concursos/investigadores>.
2. The application process must be accompanied by documentation in English.
3. The application should be submitted preferably by email, containing the following documents:
  - a) Certificate proving the Doctor's degree in the disciplinary area to which the competition relates;
  - b) Curriculum vitae of the candidate, which must include:
    - i) The identifications “Researcher ID”, “Scopus Author ID”, and “Google Scholar ID”.
    - ii) Research and development activities and all other activities considered relevant to this tender procedure, in accordance with the terms of this announcement.
    - iii) Scientific and technological development plan (max. 5 pages A4).
  - c) Published works, mentioned in the curriculum vitae, namely the most representative ones, with regard to their contribution to the development and evolution of the disciplinary area in which the competition is opened;
  - d) Declaration, under oath, that if the jury chooses to request the documentation indicated in the previous paragraphs or any other scientific documentation mentioned in the candidate's curriculum vitae, it will be delivered within 10 working days;
  - e) Other documents that candidates deem relevant for the analysis of their application.

## **VII – Presentation of the application**

1. The documents supporting the application must be submitted by the 15th working day, counting from the day following the publication of this Notice in the Diário da República.
2. Candidates will submit their application documents, in a single PDF file, by email, to the following address: [concursos.investigadores@fct.unl.pt](mailto:concursos.investigadores@fct.unl.pt).

## **VIII - Evaluation parameters**

1. In this call the candidates' ability and performance will be evaluated in the various parameters under the terms of article 16 of ECIC.
2. The curricular evaluation of the various candidates in each of the parameters described below shall take into consideration the scientific area in which the call is open.
3. The parameters to be taken into consideration in the curricular evaluation of the candidates, in each of the sections, are as follows:
  - a) Quality of Scientific and Technical Work (QSTW);
  - b) Professional Experience and Training (PET);
  - c) Contributions in Scientific Supervision Activities (CSA);
  - d) Participation in Management Bodies (PMB);
  - e) Provision of Services to the Community (PSC);
  - f) Scientific and Technological Development Plan (STDP).

## **IX - Interview**

1. The Jury will deliberate at the first meeting on the need to carry out an interview with all the candidates.
2. The interview, which does not constitute a selection method and is not graded, aims to obtain clarification or explanation of elements contained in the candidates' Curriculum vitae.

## **X - Classification by absolute merit of candidates**

1. In accordance with paragraph 1 of article 27 of the Statute of the Scientific Research Career, approved by Decree-Law no. 124/99, of 20 April (ECIC), the jury will deliberate on the admissibility on absolute merit of the candidates, expressed by the formulas Rejected or Approved.
2. Candidates who have an overall curriculum that the jury considers appropriate for the job to be filled are approved on Absolute Merit, namely, merit of the candidates' scientific and technical work, as well as experience and professional training, compatible with the category and scientific area(s) and subarea(s) for which the competition is open, always taking into account, for this assessment, the following reference criteria:
  - a) Have evidence of scientific quality expressed by publications indexed as last author or corresponding/main author, with a minimum scientific output of 50 articles indexed in WoS and at least 2000 citations in Scopus. Additionally, in the last 10 (ten) years, they should have published at least 7 (seven) articles classified as Q1 in impact factor in WoS, in the fields of Mathematics or Applied Mathematics;
  - b) Have experience in supervising or co-supervising undergraduate, master's, or doctoral students, or post-doctoral fellows or fellows with a master's degree;
  - c) Have led or participated in the conception, development and execution of research projects and/or lines of research of R&D units of the national scientific system or others, including the FCT competitions Concurso Estímulo ao Emprego Científico Individual, CEEC, or FCT researcher;
  - d) Evidence of the impact of the research carried out and the conduct of efforts aimed at maximizing this impact (such as knowledge transfer, collaboration with industry or society, science communication, support for public policies).
  - e) Proven experience in Numerical Optimization and Continuous Optimization;
  - f) Proven experience in designing state-of-the-art algorithms, with a track record of successful projects, will be valued. As well as, broad knowledge in Nonlinear Optimization and Numerical Analysis; proficiency in the use of advanced techniques to establish theoretical properties of the proposed algorithms; a strong publication record in renowned scientific journals; and excellent communication and collaboration skills, with the ability to work effectively in a team environment.
3. The candidate who succeeds in obtaining a favorable vote of more than half of the members of the jury is considered approved on absolute merit.

## **XI- Ordering and voting methodology**

1. Once the candidates who have passed in absolute merit have been identified, the jury will proceed to rank them in relative merit.

2. Each member of the jury shall perform a curricular evaluation of the candidates by presenting a written opinion, to be later included in the minutes, in which they propose the ordering of the candidates based on the evaluation criteria indicated in this notice, scoring each candidate for each criterion on a numerical scale from 0 to 100 points.
3. The evaluation criteria indicated shall be weighted as follows:
  - a) Quality of Scientific and Technical work (QSTW): 50%**

Scientific publications should be valued, considering their relevance to the advancement of knowledge in the fields of Mathematics or Applied Mathematics, with special emphasis on the five works indicated by the candidate as their most significant contributions.
  - b) Professional Experience and Training (PET): 22%**

Extension activities and dissemination of scientific knowledge, including the organization of courses, seminars, conferences, and invited speaker at international conferences. Participation in relevant scientific projects in the fields of Mathematics or Applied Mathematics.
  - c) Contributions to Scientific Orientation Activities (CSOA): 10%**

Experience in teaching and advanced training, particularly in the supervision of postgraduate students in the fields of Mathematics or Applied Mathematics.
  - d) Participation in Management Bodies (PMB): 3%**

Participation and performance in tasks assigned by management bodies of the institutions to which the candidate was linked;
  - e) Provision of Services to the Community (PSC): 3%**

Carrying out tasks related to the economic and social valorization of knowledge, particularly through management and providing services to the community.
  - f) Scientific and technological development plan (STDP): 12%**

Career development plan, relating to the lines of research in the area and subarea for which the competition is open and which the candidate proposes to dedicate themselves to at NOVA Math, complying with the following requirements:
    - i. Identification of the objectives of the project contend to be developed, demonstrating what advances may result from the research in relation to the current state of the art in this area;
    - ii. Systematized and succinct description of the research strategies and methodologies that the candidate proposes to adopt to achieve the proposed objectives, of the main expected results and of the impact that these may have on the development of their career and on the community;
    - iii. The career development plan cannot exceed 5 A4 pages, written in 12 pt font size.
4. The ordering of the Approved candidates is done by voting of the members of the jury, respecting the ordering presented in the opinion referred to in the previous number, in the following terms:
  - a) The first vote is intended to determine the candidate to be placed in first place;
  - b) In the voting referred to in the previous paragraph, if a candidate obtains more than half of the votes to be placed in first place, he will be ranked in this position;

- c) If the situation referred to in the previous paragraph does not occur, a new vote is held, only among the candidates who obtained votes for 1st place, after removing the candidate least voted for that place in the previous vote;
- d) If there is more than one candidate to be withdrawn, due to an equal number of votes, with a minimum of one vote each, a vote is held only on these candidates to determine the candidate to be withdrawn from the next vote; in this voting, each member will vote, among the candidates with equal votes, for the candidate who occupies the lowest position in the ordering contained in his/her opinion;
- e) If there is a tie, the tiebreaker is done through the tiebreaker vote or casting vote of the president of the jury, under the terms of paragraph 3 of article 19 of the ECIC.
- f) Voting is repeated until it is determined, by the procedure described above, which candidate to rank first. If there are only two candidates left and each one of them gets half of the votes, the tiebreaker is done through the casting vote of the president of the jury;
- g) Once the candidate for first place is chosen, the candidate is removed from the voting and the whole process is repeated for second place and so on until an ordered list of all candidates is obtained.

## **XII – Notifications and Hearing of Interested Parties**

1. There is a prior hearing, under the terms of the Code of Administrative Procedure, of candidates who have been rejected, and of candidates ordered in place of the ordering list of candidates that cannot be provided in the job position in the competition. All candidates are notified of the homologation of the jury's final deliberation.
2. Notifications are made by email.
3. The tender process can be consulted by the candidates, at the Human Resources Division of NOVA FCT, under the terms indicated in the aforementioned notification.

## **XIII – Jury composition**

1. Under the terms of Regulation no. 393/2018, of 28 June, the assessment of applications will be carried out by a jury and will follow the procedure set out in articles 16, 18, 19, 20, paragraphs 1 and 2, 21 to 23, 24, 26 and 27 of the Scientific Research Career Statute (ECIC).
2. Under the terms of Article 19 of the Scientific Research Career Statute, the jury must be composed of a minimum of five and a maximum of nine members:
3. It must include Researchers or Professors not belonging to the Institution for which the competition is open or national or foreign specialists, in a number not less than half minus one of the members of the jury.
4. The members of the competition jury are:

### **President:**

Doctor José Júlio Alves Alferes, Full Professor and Dean of the NOVA School of Science and Technology of NOVA University of Lisbon, by delegation of competences.

**Vowels:**

Doctor Immanuel Bomze, Full Professor e Senior Research Associate, University of Vienna, Áustria;

Doctor Luís Filipe de Castro Nunes Vicente, Timothy J. Wilmott Endowed Chair and Full Professor, Lehigh University, EUA;

Doctor Miguel Nuno Ferreira Fialho dos Anjos, Chair of Operational Research, University of Edinburgh, United Kingdom;

Doctor Luís Eduardo Neves Gouveia, Full Professor, Faculdade de Ciências, Universidade de Lisboa;

Doctor Maria Cândida Vergueiro Monteiro Cidade Mourão, Full Professor, ISEG, Lisbon School of Economics & Management, Universidade de Lisboa;

Doctor João Jorge Ribeiro Soares Gonçalves de Araújo, Full Professor, Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa;

Doctor Carlos Manuel Agra Coelho, Full Professor, Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa;

Doctora Maria Fernanda Almeida Cipriano Salvador Marques, Full Professor, Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa.

**XIV - Non-Discrimination and Equal Access Policy**

NOVA FCT actively promotes a policy of non-discrimination and equal access, ensuring that no applicant is favoured, disadvantaged, or deprived of any rights on the grounds, namely, of ancestry, age, gender, disability, sexual orientation, chronic illness, nationality, ethnic origin or race, religion, or political beliefs.

**XV - Data Protection**

In accordance with the RGPD – General Data Protection Regulation, the data collected will be processed exclusively for the processing of the application.

And for the record this Notice is published

October 30, 2024 - The Dean, Prof. Doctor José Alferes