

CALL FOR GRANT APPLICATIONS (AE2020-0113)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the project AIDA-1, cofunded by the ERDF - European Regional Development Fund, through the Operational Programme for Competitiveness and Internationalisation - COMPETE 2020 Programme and by National Funds through the FCT - Portuguese Foundation for Science and Technology, I.P. on the scope of the CMU Portugal Program on the scope of POCI-01-0247-FEDER-045907

1. GRANT DESCRIPTION

Type of grant: Research Grant (BI)

General scientific area: COMPUTER SCIENCE

Scientific subarea: Programming, Computer Systems, Informatics

Grant duration: 12 months, starting on 2020-10-01, with the possibility of being renewed for a maximum term of four years, in the cases of students enrolled in a PhD.

Scientific advisor: João Gama

Workplace: INESC TEC, Porto, Portugal

Maintenance stipend: € 1064,00, according to the table of monthly maintenance stipend for FCT grants, paid via bank transfer. Grant holders may be awarded potential supplements, according to a quarterly evaluation process (Articles 19, 21 and 22 of the Regulations for Grants of INESC TEC and Annex II), up to a maximum limit of 50% of the monthly maintenance stipend.

Costs attributable to INESC TEC may include registration, enrolment or tuition fee stipend, either directly or through reimbursement, during the grant duration.

The grant holder will benefit from health insurance, supported by INESC TEC.

2. OBJECTIVES:

The work consists of the development of federated machine learning (FL) algorithms for distributed data streams. The research will focus on problems related to trustworthy online model updates and model aggregation in several types of algorithms (e.g. frequent patterns, clustering, decision trees, matrix/tensor decomposition, ensemble learning), under constraints related to privacy, security, explainability, and energy-efficiency. The work involves also the writing of technical reports related to the project, as well as the publication of scientific papers. Possibility of lecturing activities in topics directly related to the project in INESC TEC's partner higher education institutions.

3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Generalization of the federated machine learning framework to various types of algorithms (not exclusively neural architectures)
- Dealing with horizontally- and vertically-partitioned data
- Investigation of privacy-preserving techniques and explainable methods
- Energy optimization of distributed algorithms in multiple use cases
- Publication of at least 3 scientific papers during the fellowship period
- Submission of PhD Thesis

4. REQUIRED PROFILE:

Admission requirements:

Msc in Computer Science/Engineering, Computational Statistics or similar area

The awarding of the fellowship is dependent on the applicants' enrolment in study cycle or non-award courses of Higher Education Institutions.

Preference factors:

Msc thesis or dissertation and/or published papers on topics included in the work plan

Minimum requirements:

Master thesis or dissertation on machine learning

5. EVALUATION OF APPLICATIONS AND SELECTION PROCESS:

Selection criteria and corresponding valuation: the first phase comprises the Academic Evaluation (AC), based on the criteria referred to in Article 12 of the Regulations for Grants of INESC TEC, while the second phase comprehends the Individual Interview (EI). All factors are evaluated on a scale of 0 to 100, taking into account the applicants' merit, suitability and conformity with the preference factors.

The weight of the AC factors are as follows: Academic Qualifications (FA, 40%), Scientific Publications (PC, 30%), Experience (EX, 20%) and Motivation Letter (CM, 10%).

Candidates who score less than 50 points in the AC average will be considered excluded on absolute merit. The top five candidates approved on absolute merit will be qualified for the individual interview. The Final Grade (CF) is obtained by the weighted average of AC (60%) and EI (40%).

The Selection Jury is composed of the following members:

President of the Jury: Alípio Jorge

Full member: João Gama

Full member: João Vinagre

Substitute member: Rui Camacho

Release of results and prior hearing: the results of the selection process, as well as the terms and procedures for prior hearing, will be released to the applicants by email, under the terms referred to in Article 13 of the Regulations for Studentships and Fellowships of INESC TEC.

6. FORMALISATION OF APPLICATIONS:

Application Documents:

1. Motivation letter;
2. Curriculum Vitae (must include the list of previous fellowships, their type, beginning and end dates, funding entities and host institutions);
3. Certificate or diploma degree fully recognised in Portugal;
 - Documents proving the awarding of academic degrees and diplomas, or the according recognition - in cases of academic degrees or diplomas granted by a foreign higher education institution - can be dismissed in the application process, and replaced by the applicant's declaration of honour, with the verification of said condition taking place during the grant's hiring stage.
4. Proof of enrollment in a degree awarding study cycle or in a non degree awarding Higher Education program.
 - The proof of enrollment may be presented just during the grant hiring stage.
5. Signed declaration stating the infringement of the grant holder's duties (article 14, no. 4)
6. Documental evidence to support the country of residence, residence permit or other legally equivalent document, in cases where the applicant is a foreigner or non-resident in Portugal - valid until the beginning of the grant.
7. Other supporting documents relevant to the final assessment.

Failure to deliver the required documents within the 90-day period after the date of the notice of the conditional awarding of the grant implies its cancellation.

Application period: From 2020-08-05 to 2020-09-07

Submission of applications: the application will be formalised by submitting the form available in the *Work With Us* section of INESC TEC website.

7. BINDING LEGISLATION AND REGULATION

The hiring process shall comply with the current legislation regarding the Research Grant Holder Statute, approved by Law no. 40/2004 of August 18, in its current wording, as well as by the Regulations for Grants of INESC TEC and for [FCT Grants Regulation in force](#).

For more information, please check the Regulations for Grants of INESC TEC and relevant annexes at www.inesctec.pt/bolsas

