

## CALL FOR GRANT APPLICATIONS (AE2020-0061)

INESC TEC is now accepting grant applications to award 1 Research Grant (BI) within the scope of the DaVinci, funded by Fundo Europeu de Desenvolvimento Regional (FEDER) 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., project (reference POCI-01-0145-FEDER-029946 (PTDC/CCI-COM/29946/2017)), for 36 months.

### 1. GRANT DESCRIPTION

**Type of grant:** Research Grant (BI)

**General scientific area:** COMPUTER SCIENCE

**Scientific subarea:** Informatics

**Grant duration:** 12 months, starting on 2020-07-01, with the possibility of being renewed for a maximum term of four years, in the cases of students enrolled in a PhD.

**Scientific advisor:** Alexandre Castro Madeira

**Workplace:** INESC TEC, Braga, 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:

We propose to study and develop semantic models for connectors with fuzzy behaviour, including probabilistic models, and corresponding logic for its specification. This work plan includes the development of multi-relational fuzzy semantics, the definition of a dynamic fuzzy logic for complex Reo connectors, notions of behaviour equivalence for these models, and their relation with the proposed logic. We will use as use-case medical scenarios based on the Arden syntax.

### 3. BRIEF PRESENTATION OF THE WORK PROGRAMME AND TRAINING:

- Development of variations of multi-relational fuzzy and probabilistic semantics for Reo connectors, using use-cases from medical systems based on the Arden syntax (4M).
- Specification of a dynamic logic to verify and specify connectors via refinements (4M).
- Study of equivalence notions for these fuzzy models (bisimulations and refinements), and their relation with the proposed logic (4M).

#### 4. REQUIRED PROFILE:

##### Admission requirements:

master's degree in computer science or mathematics

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

##### Preference factors:

Participation in research projects in formal methods, with emphasis on algebraic analysis of computational models. Knowledge of concurrent languages. Good graduation grades.

##### Minimum requirements:

Master with some research experience in the scientific area of the project, and knowledgeable in the respective area (fuzzy logics and coordination models).

#### 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, 30%), Scientific Publications (PC, 25%), Experience (EX, 30%) and Motivation Letter (CM, 15%).

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: Luís Soares Barbosa

Full member: Alexandre Castro Madeira

Full member: José Paiva Proença

Substitute member: Guillermina Cledou

**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 2020-05-26 to 2020-06-08

**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](http://www.inesctec.pt/bolsas)

