

## CALL FOR RESEARCH POSITION

PReFECT/BIM/02/18

The CISTER Research Unit hosted at the School of Engineering of Porto (ISEP), is opening 1 BIM research position, with ref. PReFECT/BIM/02/18. The work is to be developed under project PReFECT (ref. POCI-01-0145-FEDER-029119), supported by National Funds through the FCT/MCTES Portuguese Foundation for Science and Technology and co-financed by the Operational Competitiveness Programme and Internationalization (COMPETE 2020) under the PT2020 Partnership Agreement, through the European Regional Development Fund (ERDF), in the following conditions:

### 1. SCIENTIFIC AREA

Electronic and Computer Engineering

### 2. REQUIREMENTS

The candidate must hold a Master's degree in Electrical and Computer Engineering must fulfil the following list of requirements:

- hold a Master degree with specific focus on aspects related to heterogeneous multicore processors
- proven knowledge in optimization of resource allocation for heterogeneous multicore processors
- proven knowledge in scheduling techniques for System on Chip Platforms
- be fluent in English, both written and spoken

The candidate should also preferably demonstrate:

- solid knowledge in multicore processor simulators
- knowledge in hardware description languages
- proven experience in the development of real-time embedded software tools such as MatLab and low-level programming languages such as C and C++;
- demonstrate interest in pursuing PhD studies in the area of real-time embedded computing systems.

### 3. CONTRACT DURATION

The position is of 6 months, possibly renewable, up to the limits stated in the regulation.

### 4. WORK PLAN

The PReFECT project will address the following challenges with respect to the introduction of multicore processors in safety-critical systems: model and analyze the timing interference generated by the hardware resources shared between cores (e.g., caches, interconnect and I/O devices); propose runtime mechanisms and scheduling solutions to mitigate the unpredictability of COTS multicore processors by controlling the interference between cores; - develop tools for the automatic system configuration before its deployment.

The goal of this project is to optimize the usage of the platform while guaranteeing that all the timing requirements of the applications are respected. To attain these objectives we will build upon the large body of results already published by the research team on modelling and timing analysis of multicore processors, and on the expertise of the industrial partners (GMV and Critical Software) in the safety critical system development. The project results will be demonstrated in two industrial use-cases related to the avionics and automotive domains.

The workplan will focus on aspects related to the development of novel mechanisms and tools for embedded real-time systems with the objective of mitigating the problems associated with the utilization of COTS components in safety-critical systems.

**CALL FOR RESEARCH POSITION**

PReFECT/BIM/02/18

**5. LEGISLATION**

Law no. 40/2004 of August 18, amended and republished by Decree-Law nr. 202/2012 of August 27, by Law no. 12/2013 of January 29, and by Decree-Law nr. 89/2013 of July 9; Regulation no. 73/2015 of February 16 (published in Diário da República (Official Gazette) no. 32, Series II of February 16, 2015) - ISEP Regulation on Advanced Training and Qualification of Human Resources. FCT Regulation on Advanced Training and Qualification of Human Resources ([PDF](#)) | Published in Diário da República: FCT Regulation on Advanced Training and Qualification of Human Resources, approved by Regulation nr. 234/2012, Series II of June 25 of 2012, amended and republished by Regulation nr. 326/2013, published in Diário da República Series II of July 27 of 2013, amended by Regulation nr. 339/2015, published in Diário da República Series II of June 17 of 2015, and amended by Regulation nr. 137-A/2018, published in Diário da República Series II of February 27 of 2018.

**6. WORKING LOCATION AND SUPERVISOR**

The work is to be carried out at the facilities of the CISTER Research Unit hosted at the School of Engineering of Porto (ISEP), under the coordination of a PhD member of the Research Unit.

**7. SALARY**

**Salary:** €980, Payment by Wire Transfer (stipend in accordance with the FCT regulation: <http://www.fct.pt/apoios/bolsas/valores.phtml.pt>), supported by PAD n.º C39570.

According to what is stated in the regulations, and only applicable to exceptional cases and on terms to be defined, an additional amount may be paid.

Only for Foreigners, there may be the additional following payments:

Installation Subsidy: € 1000 (for stays of a minimum of 6 consecutive months)

Travel Subsidy: € 600 (outside Europe); € 300 (Europe)

**8. MÉTODOS DE SELEÇÃO E COMPOSIÇÃO DO JÚRI**

The Jury responsible for the selection will be composed by PhD members of the Research Unit, as follows:

Chair: Eduardo Tovar (Project Coordinator (PI));

Effective Jurors: Dr. Filipe Pacheco (Substitute Chair) and Dr. Luis Lino Ferreira;

Substitute Juror: Dr. Luis Almeida.

Assessment criteria will be:

- Master degree focus (25%)
- knowledge in the required technologies (25%)
- knowledge in the preferable topics (20%)
- interview (30%)

**Remarks:**

Candidates may be excluded from the call for the following reasons:

- a) For not holding the required academic degree and requirements (see 2. REQUIREMENTS);
- b) For getting a score lower than 9.5 (out of 20) in any of the assessment criteria stages;
- c) For not attending the interview or unavailability to provide any additional information required by the Jury during the selection process.

## CALL FOR RESEARCH POSITION

PReFECT/BIM/02/18

### 9. FORM OF PUBLICATION / NOTIFICATION OF RESULTS

The evaluation results will be disseminated electronically (by email).

### 10. DEADLINE / APPLICATION PROCEDURE

The interested candidates should submit the application between **20/DEC/2018** to **4/JAN/2019**.

The application must include a **detailed CV, and transcripts**, and should be addressed to the email [jobs@cister-labs.pt](mailto:jobs@cister-labs.pt), until **4/JAN/2019**. Indicate “**ref. PReFECT/BIM/02/18**” as email subject.

### 11. RESERVE LIST

CISTER/ISEP reserves the right to consider the non-selected applicants, always according to the final ranking list, for hiring a fellow for the same project in case the initially selected candidate abdicates from the position.

CISTER Labs  
School of Engineering  
of the Polytechnic Institute of Porto (ISEP-P.PORTO)  
Rua Dr. António Bernardino de Almeida, nº431 | 4249-015 PORTO | Portugal  
Tel. +351 22 8340502 | <http://www.cister-labs.pt/>

Porto, 6/DEC/2018