CALL FOR APPLICATIONS: RESEARCHER

Job/position/grant:

Job reference:	AE2023-0303 (ATE - CPES)
	INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciï¿½ncia
Job/position/grant:	RESEARCHER
City:	Porto
Research field:	Main: ENGINEERING,COMPUTER SCIENCE
	Sub: Electrical engineering,Programming,Digital systems

Job summary:

INESC TEC is accepting applications for 1 RESEARCHER job in the Digital Twins for Smart Buildings

Project:	Alliance for Energy Transition
Scientific Advisor:	Zenaida Mourão
Start Date:	2023-09-26
Location:	INESC TEC, Porto, Portugal

Job description:

Work Area: Digital Twins for Smart Buildings

Project overview: Portugal has an obsolete building stock from an energy point of view (average age of buildings over 35 years) and buildings are responsible for about 30% of final energy consumption in Portugal. The ZEB project within ATE aims to develop a turnkey solution that allows the transformation and management of tertiary buildings (new and existing) in a more efficient way, making "Zero Energy Buildings" a reality. The project will develop a platform to manage and optimize the entire building through a single interface, with the following functionalities: (1) Integration and management of energy resources (e.g. photovoltaic panels, micro-generation wind turbines, batteries); (2) Universal building modeling system and recommendation of energy efficiency measures (digital twins applied to B2B buildings); (3) Equipment/energy consumption management system (and air quality and building comfort) based on video analytics, AIoT and artificial intelligence; (4) Platform for electric mobility in buildings (EV as mobile flexible charging with charging power regulation capability and V2G support); (5) Accounting for CO2 emissions.

Objectives: Development of the digital twins applied to B2B buildings. Implementation of architectures and data models to support interoperability between systems including: identification of different sources of monitoring, metering, measurement, and sensing data; use of open and standardized models for semantic representations of systems and platforms. Development of an information integrator, as a component of the interoperability architecture, as well as the respective data connectors to enable interoperable data exchange between the different platforms and systems. Support integration of the developed energy and control modules into existing/new business/IT systems, including data adaptation, analysis and computational implementations of algorithms, so that they can be integrated into the digital platforms that will support the digital twin(s) for tertiary buildings

Academic Qualifications:	Master or bachelor degree in Electrical and Computer Engineering or Computer Science or Informatics
Minimum profile required:	Proficiency in the development of digital twin systems and representations; Comprehensive understanding of standardized models for semantic representations of systems and platforms; Knowledge in the development of data connectors for data exchange between different platforms and systems; In depth knowledge of backend and frontend programming (e.g., HTML, JavaScript, TypeScript, Angular, Django, Flask); Expertise in version control systems (e.g., Git) and CI/CD; Expertise in databases (e.g., MySQL, SQL, PostgreSQL, MongoDB, Cassandra); Exceptional written and oral communication skills in English (mandatory), and Portuguese (desirable).
Preference factors:	Experience in the development of digital twins, preferably in industry and/or buildings; Experience in the development of interoperability architectures and data models.

Funding Entity:	ATE funded by IAPMEI with reference 56 Co-financed by Component 5 - Capitalization and Business Innovation, integrated in the Resilience Dimension of the Recovery and Resilience Plan within the scope of the Recovery and Resilience Mechanism (MRR) of the European Union (EU), framed in the Next Generation EU, for the period 2021 - 2026.

Type of contract: Uncertain term contract

The hiring shall be governed by what is stipulated in the legislation in force regarding uncertain term employment contracts and by INESC TEC norms.

PRR Plano de Recuperação e Resiliência

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Selection criteria:	The selection of the candidates will be based on the following criteria, in descending order of consideration: a) Relevant Curriculum in the concerned field of this tender b) Proven experience.
Selection Jury:	President of the Jury: Prof. Zenaida Mourão; Member: Prof. Ricardo Jorge Bessa; Member: Prof. David Emanuel Rua;
Notification of results:	The results of the selection process will be sent to the interested by electronic mail.
Application period:	From 2023-07-27 to 2024-08-27
Application submission:	Electronic form filling in www.inesctec.pt in the section Work with Us