



SUPERVISOR INFORMATION	
First and Last name	Gil Gonçalves
URL of supervisor webpage	https://sigarra.up.pt/feup/pt/func_geral.formview?p_codigo=242996
Department	Informatics Engineering
Field(s) of research	information system architectures and models for complex systems; Cyber-Physical Systems and Digital Twins
PROJECT PROPOSAL	
Title (optional)	Engineering of Evolving Information Systems
Brief project description	
<p>The convergence of Internet of Things (IoT), Cyber-Physical Systems (CPS), and Artificial Intelligence (AI) within Information Systems creates unprecedented opportunities for developing intelligent, evolving information systems that bridge digital and physical domains, exhibiting emergent behaviours arising from interactions between software, devices, physical processes, and humans.</p> <p>Information Systems encompass several topics including data management, applications, distributed systems architectures, and spatial-temporal systems. The convergence of IoT, CPS, and AI fundamentally transforms these traditional categories by introducing:</p> <ul style="list-style-type: none"> - Intelligent Information Management: enhanced information systems capable of autonomous optimisation, predictive analytics, and real-time decision-making. - Cyber-Physical Information Applications: Information systems that directly interact with and control physical processes through networks of devices. - Distributed Intelligent Architectures: Systems that leverage edge-cloud continuum for real-time processing, coordination and autonomous decision. <p>This project proposes to develop a comprehensive framework for Engineering Evolving Information Systems. This is an emerging research domain addressing the convergence of information systems, software engineering, systems engineering, artificial intelligence, and cyber-physical systems.</p>	