

Perfil de Profissional a Contratar

PhD Researcher for Modular Construction and Prefabrication – FCT Tenure

O BUILT CoLAB promove a transição digital e ecológica do Setor AEC – Arquitetura, Engenharia e Construção. Para isso baseamo-nos na transferência e na valorização do conhecimento para a indústria, numa abordagem “Technology to Market”, com o objetivo de aumentar da sua competitividade e internacionalização. Somos uma nova plataforma numa indústria já estabelecida e reunimos uma equipa criativa, ágil e diversificada, com objetivo de implementarmos soluções que conduzam o setor à inovação digital e sustentável. Respondemos a problemas tradicionais com novas abordagens, valorizamos as diferenças, potenciamos a individualidade e celebramos competências e perspetivas diversas, num ambiente produtivo e inclusivo. Conheça-nos melhor em builtcolab.pt/

DESCRIÇÃO DA FUNÇÃO

“Aims to develop studies by the scientific area, as well as guidance activities for doctoral students, master's students and research fellows, and other activities included in the Associação BUILT COLAB's Research&Development Agenda.

The role focuses on exploring advanced computational models to revolutionize the prefabrication process of building modules. The objective is to develop standardized modules by analysing real-world data to optimize geometry, cost-efficiency, and carbon footprint. This analysis will leverage architectural and engineering designs primarily sourced from Building Information Modelling (BIM) data, as well as national and regional normative and regulatory documents, ensuring that the generated modules and corresponding buildings comply with existing legal and regulatory frameworks.

The research involves applying standard optimization algorithms and Artificial Intelligence (AI) techniques, specifically Machine Learning (ML) and Deep Learning (DL), to construct, tune, and deploy computational models. Techniques such as data fusion, hybrid architecture networks, and ensemble learning will be employed to create and identify modules optimized for specific key performance indicators (KPIs). Additionally, the role will explore the use of Large Language Models (LLMs) to analyse regulatory documents and incorporate user input effectively.

The researcher will also focus on developing accessible libraries for modular designs and a generative tool capable of producing detailed production and assembly documentation. This tool will process metadata and visual information of modules to create documentation for manufacturing and on-site assembly. Furthermore, the research will involve designing tools that utilize 3D web visualization libraries to represent module data effectively, ensuring seamless integration of metadata into visual outputs for comprehensive production workflows.”

CANDIDATURA

A **candidatura** deve ser **efetuada seguindo obrigatoriamente as indicações disponíveis no Portal Euraxess em <https://euraxess.ec.europa.eu/jobs/305818>** e enviada para info@builtcolab.pt, indicando no título do email “Candidatura a Modular Construction and Prefabrication Tenure”.