

Cofinanciado por:



**Designação do projecto** | Eco-Healing - Intelligent Eco-controller with self-healing capability

**Código do projecto** | UIDB/0048/2020 – ISR - Eco-Healing

**Entidade beneficiária** | Instituto de Sistemas e Robótica

**Data de Início** | 01-01-2021

**Data de conclusão** | 31-12-2021

**Apoio financeiro público nacional** | FCT/MCTES através de fundos nacionais e integralmente financiado por UIDB/0048/2020 - 25.000€

## Síntese do Projecto:

Under an Industry 4.0 strategy, in order to improve the long-term resilience capability and efficiency of complex industrial processes, this project intends to develop innovative computational intelligence methodologies to design self-healing controllers, in order to control a multi-objective target based on eco-efficiency Key Performance Indicators (KPIs). The proposed self-healing controller is represented by a hierarchical intelligent controller composed of three levels, in order to control the entire system:

- i) at the lower level, identify abnormal conditions. In order to reach a solution with long-term resilience capability, will be focused on predictive diagnosis to predict potential malfunctions; and identification of the failure's reasons based on an innovative methodology based on sensitive analysis and fuzzy systems.
- ii) at the middle level, design of efficiency and eco-efficiency KPIs to identify the most critical variables and process parameters regarding efficiency and eco-efficiency (environmental).
- iii) at the high level, design of a multi-objective intelligent self-healing controller in order to control the entire system, by adapting/tuning the local setpoints/parameters. The control target will be multi-objective composed of several KPIs, as for example, the control's target can be simultaneously the control of the efficiency and of the eco-efficiency (environmental) of the process.

ISR-UC(Leader); INEGI; Brunel University London (UK) e Oncontrol Technologies, Lda.

Link do Projecto:

<https://isr.uc.pt/index.php/projects/current-projects?task=showprojects.show%28%29&idProject=243>

