

# ABC<sup>PhD</sup> OPENTalks 2022

ELOI FIGUEIREDO

Wednesday 20 July , 11h30 in CAMPUS  
LEONARDO. Building 5, Castigliano room.

## New trends for structural health monitoring of bridges

Structural health monitoring (SHM) has been a promising tool in management activities of bridges. To deal with large amounts of data, SHM has been cast in the context of a statistical pattern recognition (SPR) paradigm. Meanwhile, recent technologies have unveiled alternative sensing opportunities and new perspectives to manage and observe the response of bridges, but it is widely recognized that bridge SHM is not yet fully capable of producing reliable global information on the presence of damage. Therefore, the main goal of this presentation is to point out key developments in research and applications of the SPR paradigm observed in bridges in the last three decades, including developments in sensing and in machine learning for data analysis, and to identify current trends to promote more coordinated and interdisciplinary research in the SHM of bridges.



PhD in Civil Engineering (2010) and Full Professor at the Faculty of Engineering of the Lusófona University, in Lisbon. Eloi has dedicated his academic career teaching courses in the field of static and dynamic structural analysis, seismic engineering, and design of reinforced and prestressed concrete structures. In terms of scientific research, he has worked mainly on SHM of bridges, with focus on damage identification based on machine learning techniques and finite element modeling. He offers courses and short courses on SHM. Recently, he has been awarded with an EEA Grant to study the impact of climate change on the structural health of bridges (ClimaBridge Project). He is leader of the Civil Research Group at Lusófona University rooted in the civil engineering field to promote sustainable and resilient infrastructure. In terms of publications, Eloi has over 100 publications on SHM through books, book chapters, peer-reviewed journals, and conference proceedings; and over 70 opinion articles to promote science in our society.