



DyMoND

Dynamic Monitoring and Novelty Detection

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Structural Health Monitoring (SHM) of green-energy infrastructures

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Keywords: Structural Health Monitoring (SHM); Predictive Maintenance; Lifecycle Extension



Horizon Europe e il bando orizzontale **Clean Industrial Deal**

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Small losses, large consequences



* **61.6 TWh**

Wind + hydropower generation
in Italy per year

Just **1%** of this
energy, if generated
from **fossil fuels**,
would produce
** **0.3 Mt CO₂**.



*** **0.3 Mt CO₂** is the average
annual **electricity**
consumption corresponding to
200k families in Italy

***"Preserving renewable infrastructure is vital to
prevent major environmental and social impacts"***

Predictive Maintenance: tradition and innovation

Visual inspections & NDT

- ✗ Invasive
- ✗ Expensive
- ✗ Repeated over time

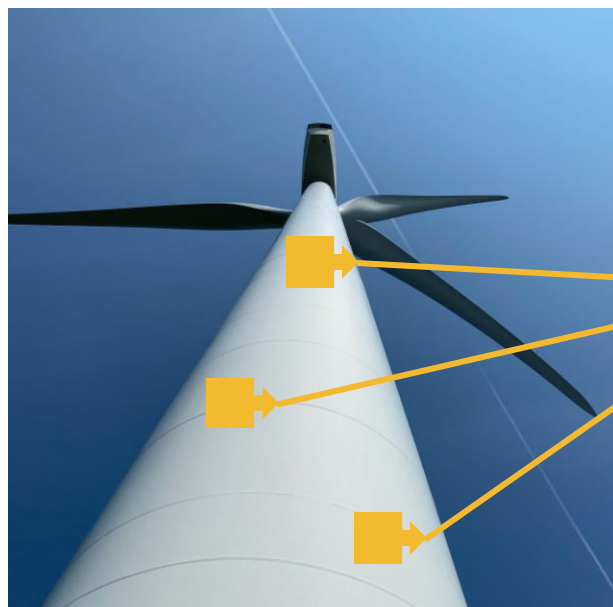
Monitoring systems

Not invasive ✓

Economic ✓

Long-term ✓

Our Solution: automated software for structural safety



7 AFFORDABLE AND
CLEAN ENERGY



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION

DyMoND supports the SDG



INTELLIGENT

It distinguishes between sensor faults and structural anomalies



FULLY AUTONOMOUS

It detects and localizes structural anomalies



REAL-TIME

It continuously processes ambient vibrations acquired in real time

Key features of SHM



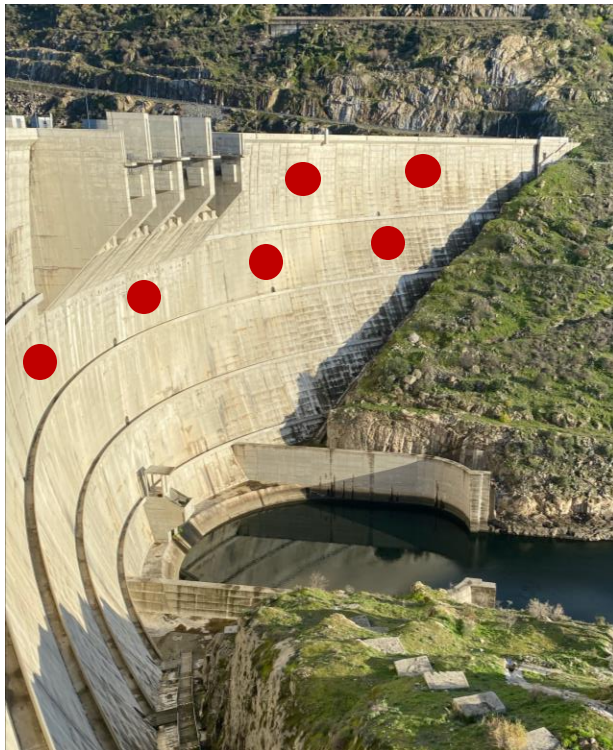
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MILANO 1863

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UNIVERSIDADE DO PORTO

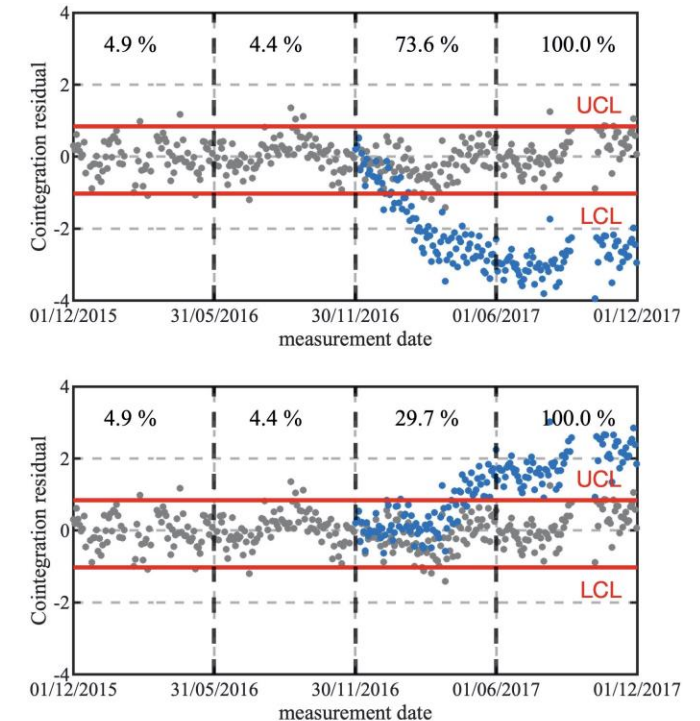
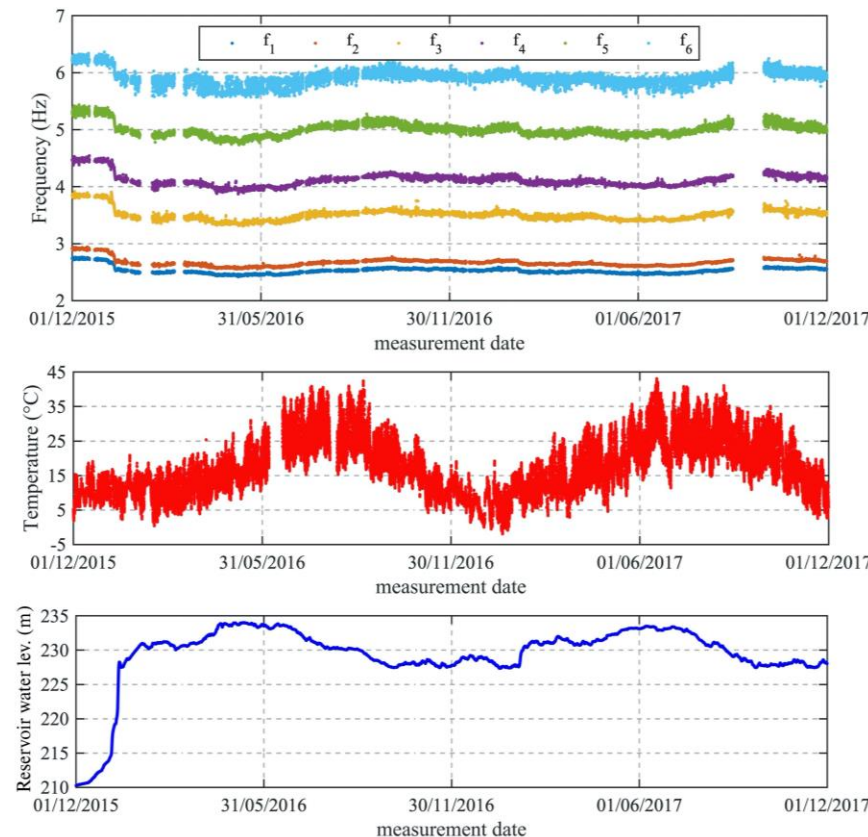
Design and deployment of
monitoring system

Identification of modal parameters and
depuration of environmental effects

Structural anomaly
identification and localization



Baixo Sabor dam (Portugal), 30/01/2024



Team



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Scientific Advisor



> 200 published papers



Expertise on: "Linee Guida MIT per la Classificazione e Gestione del Rischio, la Valutazione della Sicurezza e il Monitoraggio dei Ponti Esistenti (2020)"



Collaboration with EU Universities (e.g., with FEUP) in monitoring of **green-energy infrastructures**

THANK YOU for your kind attention!

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