Development and testing of artificial intelligence algorithms for monitoring mechatronic structures and systems

This research fellowship concerns the state-of-the art analysis, implementation and validation of artificial intelligence algorithms for the real-time monitoring of the following systems:

- *structural components subjected to deflections caused by static and dynamic loads;*
- *electrical generators with mechanical transmissions for ocean-energy converters.*

Expected activities include:

1) *state of art review on the application of artificial intelligence algorithms to the real-time monitoring of mechatronic systems;*
2) *selection of existing artificial intelligence algorithms for the intended applications;*
3) *selection of the sensors required to collect the data to be used as input by the algorithms;*
4) *selection of the electronics required to acquire sensor signals, elaborate them and run the artificial intelligence algorithms;*
5) *implementation of the algorithms in the selected electronics;*
6) *test the algorithms in a simulated environment (on models implemented in Matlab); 7) test the algorithms on experimental prototypes in a laboratory environment.*