SUPERVISOR INFORMATION	
First and Last name	Elsa Caetano
URL of supervisor webpage	https://sigarra.up.pt/feup/pt/func_geral.formview?p_codigo=211263
Department	Civil Engineering
Field(s) of research	Cable vibrations; Bridge structures; Health Monitoring; Damage identification
PROJECT PROPOSAL	
Title (optional)	Vibration-based detection and identification of damage in suspension cables

Brief project description

As the main structural members of suspension bridges, cables are usually designed with a high safety factor to ensure no need of replacement through the lifetime of the bridge. Nevertheless, it is known that in some structures, the increased loading, lack of maintenance and other unanticipated aspects have dictated early degradation of the cable, manifested through corrosion and wire break.

Therefore, monitoring the degree of degradation is of utmost importance for a safe operation.

The present project aims at using and developing tools for assessment of the condition of suspension cables. The approach combines experimental data from vibration measurement with techniques of characterization of flexibility and with high-fidelity modelling of cables for characterisation of localized effects.