

Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : BAREILLE Given names : Olivier

Status (prof., assistant prof., ...) : Professor

Laboratory : LMN - Laboratory of Mechanics of Normandy Website address : <https://www.insa-rouen.fr/recherche/laboratoires/lmn>

Institution : INSA Rouen Normandie Website address : <http://www.insa-rouen.fr/>

Scientific competence of the supervisor:

Structural Mechanics, Finite Elements, Computational Mechanics, Experimental tests, structural dynamic behaviour, Reliability analysis, Numerical Optimization, Reliability-based optimisation, wind turbine technology.

Two major publications in the field proposed for the PhD :

1. He, J., Sun, W. & Zhang, C. Remaining useful life prediction method based on gated dilation causal convolution. Sci Rep 16, 10809 (2026). <https://doi.org/10.1038/s41598-026-44784-y>
2. Jiezhong Huang, Sijie Yuan, Dongsheng Li and Tao Jiang, A Novel Nonlinear Output-Only Damage Detection Method Based on the Prediction Error of PCA Euclidean Distances Under Environmental and Operational

Website address of the personal page :

Supervisor's email : olivier.bareille@insa-rouen.fr

Description of the research work proposed for a PhD Topic # (see list) : IV-12 ; VI-2

Title : Incident and post-incident asset management for power energy supply

Subject :

The gains in optimal use of « aerial » power production and distribution systems rely on the capacity of estimating the energy production potential in any service conditions.

Energy production and distribution systems suffer more complex and demanding environmental conditions up to the point that they sometimes need to be either stopped or disconnected more often than initially designed or, even worse, they need to be early decommissioned

Therefore, we need to develop models predicting the power efficiency and its evolution with respect to the damage increase in structures like pylons and wind engine structures.

In parallel, we need to develop damage index and dynamic evolution of ruin under harsh environmental loadings.

Both model and damage index are the key element of an optimal management of power supply in post severe environmental event or technical incident to forecast the remaining useful lifetime of the power distribution system with respect to its actual state.

These three points : modeling, damage index and optimal management of power supply can be considered as the three main chapters of the PhD project.

Keywords :

serviceability limit of structure ; post-incident transitional capacity before fixing ; optimal energy management ; decommissioning ; remaining useful life

Expected collaborations :

French international civil engineering companies, CEREMA

Background required from the applicant :

structural mechanics, probability and statistics, applied mathematics, finite element method, signals processing, vibrations

Existence of a PDF file detailing the proposal ("yes" or "no") : yes

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