

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 : FLORENTIN Given names : ERIC

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

Laboratory : Laboratoire Gabriel Lamé Website address : <https://www.mechlabgabriellame.fr>

Institution : INSA Centre Val de Loire Website address : www.insa-centrevaldeloire.fr

Scientific competence of the supervisor:

Verification and Validation, Error estimation, Finite Element Analysis, Identification, Stochastic simulations, Reduced models

Two major publications in the field proposed for the PhD :

1. L. Gallimard, E. Florentin, D. Ryckelynck. Towards error bounds of the failure probability of elastic structures using reduced basis models. *International Journal for Numerical Methods in Engineering*. n°112, issue 9, p1216–1234
2. E. Florentin, P. Diez. Adaptive reduced basis strategy based on goal oriented error assessment for stochastic problems. *Computer Methods in Applied Mechanics and Engineering*, n°225-228, p 116–127 (2012)

Website address of the personal page :

Supervisor's email : eric.florentin@insa-cvl.fr

Description of the research work proposed for a PhD

Topic # (see list) : IV-6

Title : Reliable adaptative methods in mechanical engineering

Subject :

Power of computer allows to simulate complex phenomena in the field of mechanical engineering. Different numerical techniques are available to develop simplifications and reduce the cost, but they introduce different errors.

In this work, we adapt different parameters of simplified numerical methods to improve the quality of the approximated method. In particular, we are interested in correcting the different errors due to approximations done. The main objective is to develop techniques that improve the computation quality of different metamodels and preserve the computational cost. The results can be useful in different fields of mechanical engineering.

Keywords :

Finite element analysis, metamodel , numerical method

Expected collaborations :

Background required from the applicant :

Motivated student with good academic performance.
Good knowledge of numerical techniques and computation in mechanics of structures.
Skills in programming.

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

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