ELISE GROSJEAN

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EDUCATION

Postdoctoral research in Applied Mathematics *03/2022 - Present*
with Bernd Simeon at Felix-Klein-Institute für Mathematik (Kaiserslautern, Germany)

PhD in Applied Mathematics *11/2018 - 03/2022*
under the supervision of Yvon Maday at Jacques-Louis Lions laboratory (LJLL)
Subject: Non-Intrusive Reduced Basis methods (NIRB)

Master in the mathematics of modeling *2015 - 2018*
at Sorbonne-Universite

Engineer school in Applied Mathematics and Computer Science *2015 - 2018*
at Polytech-Paris UPMC

Bachelor in Fundamental Mathematics (Sorbonne-Universite) *2012 - 2015*

PROFESSIONAL

Study of a macroscopic problem for meniscus tissue regeneration *2022-2023*
Implementation with FreeFem++ (DG-FEM) and sensitivity analysis combined with model order reduction

Implementation of a Non-Intrusive Reduced Basis module in an open-source library *2018-2021*
Contributed to the online library with EDF and other partners on NIRB methods in Python and C++. Application on offshore wind turbines.

C++ Finite Elements Method implementation *2018*
Implemented the Finite Elements method to solve 2D Navier-Stokes equation in a channel.

Internship at Jacques-Louis Lions laboratory *March - August 2018*
Study of the velocity stability threshold in a steam generator of a nuclear power plant by an algebraic method and an ALE finite element method (Freefem, Matlab)

Internship at the climate research institute IK-IFU at Garmisch-Partenkirchen (Germany) *June - August 2017*
Dynamic global vegetation model (DGVM) to improve crops and the quality of soils in East Africa (R, LPJ-GUESS)

TEACHING

Tutor in Numerical analysis *2020*
at ENSAE (L'École nationale de la statistique et de l'administration économique Paris)

Tutor for bachelor (3rd year) at UPMC *2018 - 2020*
in Numerical approximation, in Python, and in Numerical methods for EDO

Tutor in Finite Elements Method , Master (1st year) at UPMC *2018 - 2021*

Tutor in Differential-Algebraic Equations, Master (1st year) at Kaiserslautern Universität *2022-2023*

SKILLS

Langage French (Mother tongue), English (Fluent,TOEIC 900), German (B2), Hindi (Notions)
Computer skills C/C++, Bash, Python, Matlab, Git, Scilab, MPI, OpenMP, FreeFem, Paraview, GMSH, Salome, Code Saturne.

ACADEMIC ACHIEVEMENTS

With Bernd Simeon, **The non-intrusive reduced basis two-grid method applied to sensitivity analysis** (Preprint) *01/2023*

With Yvon Maday, **Error estimate of the Non-Intrusive Reduced Basis (NIRB) two-grid method with parabolic equations** (Preprint) *09/2022*

With Yvon Maday, **A doubly reduced approximation for the solution to PDE's based on a domain truncation and a reduced basis method: Application to Navier-Stokes equations** (Preprint) *02/2022*

With Yvon Maday, **Error estimate of the Non-Intrusive Reduced Basis method with finite volume schemes** (m2an 10.1051/m2an/2021044) *07/2021*

Poster Session - application of reduced basis methods to wind farms *11/2019*

Recent talks:

- Department of Mathematics, university of Dhaka (Bangladesh) - Studying mathematics in France *01/2023*
- MAP5 Seminar - NIRB method applied to sensitivity analysis *11/2022*
- CANUM2022 - NIRB method applied to parabolic equations *06/2022*
- Simulation and Optimization for Renewable Marine Energies (EMRSIM22), talk on the NIRB method applied to wind farms *06/2022*
- SPP2311-Kick-off, presentation of the sensitivity analysis applied to the meniscus regeneration tissue problem, Stuttgart *05/2022*
- Workshop Mathematics of High-Performance Computing, Prague *09/2021*
- CANUM2020 - contributions *12/2020*
- Presentation of the two-grids method with EDF *10/2020*
- GTT of LJLL *10/2020*
- Model Order Reduction Summer School MORSS2020 *09/2020*

RESPONSABILITIES

Supervision of Bachelor and Master students *2022/2023*

_ Henry Jäger

_ Milena Röhrs

_ Aishwarya Nair

_ Yi-Chin Wang

Reviews

_ Mathematics and Computers in Simulation (MATCOM) / Elsevier

Organization of the "lab tea", weekly conviviality events of the LJLL laboratory *2019/2020*