

Ishak Tifouti

Updated on December, 2025.

Currently, I am a posdoctoral fellow researcher in Inria Makutu Team, I work on model reduction methods for inverse problems. I collaborate with Florian Faucher and Helene Barucq.

Address

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EDUCATION

Doctor of Philosophy, Applied Mathematics Inria Center of University of Bordeaux, Talence, France Institut de Mathématiques de Bordeaux, Université de Bordeaux Major: Applied Mathematics and Scientific Computing Supervision: Nicolas Barral, Tommaso Taddei	October 2022 - November 2025
Master of Mathematical Modelling Sorbonne Université, Paris, France Major: Partial differential equations and Numerical Analysis	September 2019 - June 2021
Bachelor of General Mathematics Sorbonne Université, Paris, France	September 2016 - June 2019

RESEARCH INTERESTS

I am interested in the development, the analysis and the implementation of intrusive (Projection-based) nonlinear model order reduction methods and error estimates-based mesh adaptation methods for advection-dominated PDEs. I also worked on non-intrusive nonlinear model order reduction for unsteady coupled PDEs for fluid-structure interactions during my master's internship.

TRAINING AND PROFESSIONAL EXPERIENCES

Master Courses ENSTA Paris National Engineering School, IPP, Saclay, France Courses: Variationnal Analysis of PDEs, Stokes problem, medical imaging, advanced numerical methods, analysis of unsteady PDEs	September 2021- January 2022
Master research internship M2N Lab, Conservatoire National des Arts et Métiers, Paris, France Michelin France, Clermont-Ferrand, France. Topic: Non-intrusive nonlinear model reduction for fluid-structure interaction Supervision: Iraj Mortazavi, Florian De Vuyst, Thibault Dairay	April 2021- November 2021
Part of the organizing team for doctoral seminars Association Lambda for PhD students in Institut de Mathématiques de Bordeaux	September 2023-
Librarian assistant Library of Medical Sciences, Sorbonne Université, Paris, France	October 2019- July 2021

TEACHING ACTIVITIES

Teaching assistant. Course: Mathematical tools (32 hours), Bachelor of Science; University of Bordeaux, France	Fall 2024
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Teaching assistant. Course: Mathematical tools (32 hours),
Bachelor of Science; University of Bordeaux, France

Fall 2023

Teaching Mentor. Courses: Applied sciences,
Sorbonne Université, France
Part of the program for student with special assistance needs

October 2019- June 2021

PUBLICATIONS

1. I. Tifouti, N. Barral, T. Taddei, Registration-based model reduction with local reduced order bases. AIAA SCITECH 2025 Forum.
2. N. Barral, T. Taddei, I. Tifouti, Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. JCP: Journal of Computational Physics , 2024.

DISSERTATIONS

1. I. Tifouti, Non-intrusive Nonlinear methods for fluid-structure interaction. Master thesis, Sorbonne Université, Numerical Analysis of PDEs, 2021
2. I. Tifouti, Nonlinear model order reduction wit mesh adaptation for Hyperbolic problems. PhD thesis, Inria Center of University of Bordeaux, Modelling and Computational Sciences, 2025

PRESENTATIONS

1. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity, January 2025, AIAA Scitech, Orlando, USA
2. Local nonlinear model order reduction with anisotropic mesh adaptation, May 2024, Canum 2024, La Rochelle, France
3. Nonlinear model order reduction with anisotropic mesh adaptation for Euler equations, October 2023, CARDAMOM Team, Inria Center of University of Bordeaux, France
4. A brief introduction to linear model roder reduction, March 2023, Lambda PhD seminars, Institut de Mathématiques de Bordeaux

PARTICIPATION to conferences

1. Mortech Conference on model order reduction, November 2023, ENS Paris-Saclay, France
2. ARIA Workshop on Industrial Applications of Model Order Reduction techniques, organized by Memphis Team, March 2023, Inria Center of University of Bordeaux, France

Languages

Arabic, mother tongue
French, bilingual
English, C1 or Plus, Linguaskill Cambridge Certification

Programming skills

Python, Matlab, Scilab, Freefem++, Fortran.