

# Ishak Tifouti

Updated on December, 2025.

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

## Address

Inria Center of Université de Bordeaux, Talence, France 33400.  
[ishak.tifouti@inria.fr](mailto:ishak.tifouti@inria.fr),

## EDUCATION

Doctor of Philosophy, Applied Mathematics	October 2022 - November 2025
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	

Master of Mathematical Modelling	September 2019 - June 2021
Sorbonne Université, Paris, France	
Major: Partial differential equations and Numerical Analysis	

Bachelor of General Mathematics	September 2016 - June 2019
Sorbonne Université, Paris, France	

## 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	September 2021- January 2022
ENSTA Paris National Engineering School, IPP, Saclay, France	
Courses: Variational Analysis of PDEs, Stokes problem, medical imaging, advanced numerical methods, analysis of unsteady PDEs	

Master research internship	April 2021- November 2021
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	

Part of the organizing team for doctoral seminars	September 2023-
Association Lambda for PhD students in Institut de Mathématiques de Bordeaux	

Librarian assistant	October 2019- July 2021
Library of Medical Sciences, Sorbonne Université, Paris, France	

## TEACHING ACTIVITIES

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

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 with 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 order reduction, March 2023, Lambda PhD seminars, Institut de Mathématiques de Bordeaux

## PARTICIPATION to conferences

1. Morteche 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.