

# Alexandre Pasco

PH.D. · APPLIED MATHEMATICS · GRADUATED ENGINEER

44000 Nantes, France

+33 6 45 11 30 90 | ✉ alexandre.pasco@ec-nantes.fr | 🌐 alexandre-pasco.github.io | 📄 alexandre-pasco | in alexandre.pasco.ecn | 📧 Alexandre Pasco

*My research is mainly about dimension reduction methods for high-dimensional approximation. I try my best to promote open science.*

## Education

**Ph.D. applied mathematics**, ECOLE CENTRALE DE NANTES

Nantes, France Dec. 2022 - Jan. 2026

**(Master's) Engineer's degree: applied mathematics**, ECOLE CENTRALE DE NANTES

Nantes, France Sep. 2019 - Sep. 2022

**Prepa Mathematics-Physics**, LYCÉE CLÉMENTEAU

Nantes, France Sep. 2017 - Aug. 2019

## Experience

**Teacher assistant**, ECOLE CENTRALE DE NANTES

Nantes, France Feb. 2023 - Mar. 2025

**Researcher internship**, LABORATOIRE JEAN LERAY

Nantes, France Apr. 2022 - Sep. 2022

**Actuarial internship**, UNION MUTUALISTE RETRAITE

Nantes, France Apr. 2021 - Aug. 2021

## Publications

### JOURNAL ARTICLES

- Nouy, A. and Pasco, A.: Dictionary-based model reduction for state estimation. Apr. 2024  
Adv Comput Math 50, 32. <https://doi.org/10.1007/s10444-024-10129-4>

### PREPUBLICATIONS

- Pasco, A. and Nouy, A.: Surrogate to Poincaré inequalities on manifolds for structured dimension reduction in nonlinear feature spaces. Feb. 2026  
Submitted. <https://arxiv.org/abs/2602.01143>
- Nouy, A. and Pasco, A.: Surrogate to Poincaré inequalities on manifolds for dimension reduction in nonlinear feature spaces. May. 2025  
Submitted. <https://arxiv.org/abs/2505.01807>

### OTHER

- Pasco, A.: Nonlinear dimension reduction for high dimensional approximation and inverse problems. Jan. 2026  
HAL. <https://hal.science/tel-05469205v1>

## Presentations

### ORAL PRESENTATIONS

- Séminaire des doctorants du LMJL Nantes, France  
Model Reduction for parameterized PDEs: why and how ? Mar. 2023
- Young Mathematicians in Model Order Reduction Conference (YMMOR) Ulm, Germany  
Dictionary-based model reduction for state estimation. Mar. 2023
- Séminaire de Mathématiques Appliquées du LMJL Nantes, France  
Dictionary-based model reduction for state estimation. Apr. 2023
- Congrès des Jeunes Chercheuses et Chercheurs en Mathématiques et Applications (CJC-MA) Gif-sur-Yvette, France  
Dictionary-based model reduction for state estimation. Sep. 2023
- SIAM Conference on Uncertainty Quantification Trieste, Italy  
Dictionary-based model reduction for state estimation. Feb. 2024
- Young Mathematicians in Model Order Reduction Conference (YMMOR) Stuttgart, Germany  
Structured Nonlinear Dimension Reduction Using Gradient Evaluations. Mar. 2024
- Rencontres Doctorales Lebesgue (RDL) Angers, France  
Dimension reduction using Poincaré inequalities. Apr. 2024

- Semaines d'Etudes Mathematiques - Entreprises et Societe (SEMES).	Nantes, France
Reconstruction of a latent space from a redox signal.	Nov. 2024
- Séminaire des jeunes chercheurs en analyse de l'IRMAR.	Rennes, France
Poincaré inequalities on manifolds for dimension reduction in nonlinear feature spaces.	Dec. 2024
- Young Mathematicians in Model Order Reduction Conference (YMMOR)	Trieste, Italy
Surrogate to Poincaré inequalities on manifolds for dimension reduction in nonlinear feature spaces.	May. 2025
- RT-UQ PhD-day	Grenoble, France
Surrogate to Poincaré inequalities on manifolds for dimension reduction in nonlinear feature spaces.	May. 2025
- PhD Defense	Nantes, France
Nonlinear dimension reduction for high dimensional approximation and inverse problems.	Jan. 2026

POSTER PRESENTATIONS

- Mascot-Num Conference	Le Croisic, France
Dictionary-based model reduction for state estimation.	Apr. 2023
- 46ème Congrès National d'Analyse Numérique (CANUM)	Ile de Ré, France
Dictionary-based model reduction for state estimation.	May. 2024

Services

Committee member, YMMOR COMMITTEE	Sep. 2023 - Present
Doctoral student representative, LABORATOIRE JEAN LERAY LABORATORY BOARD	Nantes, France Sep. 2024 - Jun 2025
Referent Researcher in middle schools, MATH.EN.JEANS	Nantes, France Oct. 2023 - Mar 2025
Volunteer tutor in Maths and Physics, ECOLE CENTRALE DE NANTES	Nantes, France Oct. 2019 - Apr 2021

Teaching

TEACHER ASSISTANT

Mathematics for engineering, ECOLE CENTRALE DE NANTES, Undergraduate course	Nantes, France Feb. 2023 - Jan 2025
Ordinary Differential Equations, ECOLE CENTRALE DE NANTES, Undergraduate course	Nantes, France Feb. 2025 - Mar 2025
Applied mathematics project, ECOLE CENTRALE DE NANTES, Graduate project supervision	Nantes, France Oct. 2023 - Apr 2025

Skills

Programming	Python (Advanced), LaTeX (Advanced), MATLAB (Intermediate), C++ (Basic), F90 (Basic), SQL (Basic), SAS (Basic)
Languages	French (Native), English (Advanced), Japanese (Intermediate JLPT N4), Spanish (Basic).