Alexandre **Pasco**

Ph.D. · Applied Mathematics · Graduated Engineer

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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 Clémenceau   *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

- 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

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*

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).