Alexandre **Pasco**

3rd YEAR PH.D. STUDENT · GRADUATED ENGINEER · APPLIED MATHEMATICS

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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 - Present
(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).