

Romain Petit

MAÎTRE DE CONFÉRENCES (ASSISTANT PROFESSOR) IN APPLIED MATHEMATICS

Sorbonne Université, LPSM, Paris, France

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Academic positions

Maître de conférences (assistant professor)

SORBONNE UNIVERSITÉ

Paris, France

Since 09/2026

Postdoctoral researcher

CNRS, ÉCOLE NORMALE SUPÉRIEURE

Paris, France

10/2024 - 08/2026

- Topic: analysis of transformers
- Host: Gabriel Peyré

Postdoctoral researcher

MACHINE LEARNING GENOA CENTER (MALGA), UNIVERSITY OF GENOA

Genoa, Italy

01/2023 - 09/2024

- Topic: nonlinear inverse problems
- Host: Giovanni S. Alberti

Education

PhD, applied mathematics

UNIVERSITÉ PARIS DAUPHINE - PSL

Paris, France

10/2019 - 12/2022

- Reconstruction of piecewise constant images via total variation regularization: exact support recovery and grid-free numerical methods
- Supervisors: Vincent Duval and Yohann De Castro
- Committee: B. Buet, A. Chambolle, M. Dambrine (reviewer), S. Masnou, G. Peyré (president), O. Scherzer (reviewer)

Master of science, mathematics vision and learning (*Master MVA*)

ÉCOLE NORMALE SUPÉRIEURE PARIS-SACLAY

Paris, France

2018 - 2019

Master of science, applied mathematics (*diplôme d'ingénieur*)

ÉCOLE NATIONALE DES PONTS ET CHAUSSEES

Paris, France

2015 - 2019

Scientific contributions

PREPRINTS

[6] On the global convergence of gradient flow for wide shallow models beyond homogeneous nonlinearities

2026

ROMAIN PETIT, CLARICE POON, GABRIEL PEYRÉ

[arxiv:2605.10775](https://arxiv.org/abs/2605.10775)

[5] A convex lifting approach for the Calderón problem

2025

GIOVANNI S. ALBERTI, ROMAIN PETIT, SIMONE SANNA

[arxiv:2507.00645](https://arxiv.org/abs/2507.00645)

ARTICLES

[4] On the nonconvexity issue in the radial Calderón problem

2026

GIOVANNI S. ALBERTI, ROMAIN PETIT, CLARICE POON, IRÈNE WALDSPURGER

SIAM Journal on Imaging Sciences (accepted), [arxiv:2507.03379](https://arxiv.org/abs/2507.03379)

[3] Localization of point scatterers via sparse optimization on measures

2024

GIOVANNI S. ALBERTI, ROMAIN PETIT, MATTEO SANTACESARIA

SIAM Journal on Imaging Sciences, [arxiv:2402.00737](https://arxiv.org/abs/2402.00737)

[2] Exact recovery of the support of piecewise constant images via total variation regularization

2024

YOHANN DE CASTRO, VINCENT DUVAL, ROMAIN PETIT

Inverse Problems, [arxiv:2307.03709](https://arxiv.org/abs/2307.03709)

Short version (in French): GRETSI 2023, [hal-04171535](https://hal.archives-ouvertes.fr/hal-04171535)

[1] Towards off-the-grid algorithms for total variation regularized inverse problems

2023

YOHANN DE CASTRO, VINCENT DUVAL, ROMAIN PETIT

Journal of Mathematical Imaging and Vision, [arxiv:2104.06706](#)

Short version: SSVM 2021, [arxiv:2104.06706v2](#)

SOFTWARES

RadialCalderon.jl

Julia

Resolution of the Calderón problem with piecewise constant radial conductivities

[github.com/rpetit/RadialCalderon.jl](#) (documentation available at [rpetit.github.io/RadialCalderon.jl](#))

PointScat

Python (JAX)

Localization of pointlike inhomogeneities in an inverse acoustic scattering problem

[github.com/rpetit/pointscat](#)

TV-SFW

Python

Grid-free numerical resolution of least squares problems with total (gradient) variational regularization

[github.com/rpetit/tvsfw](#)

PyCheeger

Python

Numerical resolution of a generalized Cheeger problem

[github.com/rpetit/pycheeger](#)

Teaching

Université Paris Dauphine - PSL

2019 - 2022

DEPARTMENT OF APPLIED MATHEMATICS

- Algebra (bachelor 1st year), courses and exercise sessions, 120 hours
- Probabilities (bachelor 1st year), exercise sessions, 20 hours

Talks

INTERNATIONAL CONFERENCES

International Conference on Curves and Surfaces

June 2026

Saint-Malo, France

SIAM Conference on Optimization

June 2026

Edinburgh, UK

Applied Inverse Problems Conference (AIP)

Sept. 2023

Göttingen, Germany

Conference on Calculus of Variations

July 2022

Lille, France

International Conference on Computational and Methodological Statistics (CMStatistics)

Dec. 2021

London, UK

International Conference on Scale Space and Variational Methods in Computer Vision (SSVM)

May 2021

Online

NATIONAL CONFERENCES

Journées SMAI MODE

March 2026

Nice, France

Colloque Francophone de Traitement du Signal et des Images (GRETSI)

Sept. 2023

Grenoble, France

Congrès National d'Analyse Numérique (CANUM)

June 2022

Evian, France

SEMINARS AND WORKSHOPS

INDAM meeting on Inverse Problems for PDEs and Geometry

May 2026

Cortona, Italy

Computational Imaging and Learning winter school (Machine Learning Genoa Center)

Feb. 2026

Genoa, Italy

Workshop Inverse Problems and Imaging (CIRM) <i>Marseille, France</i>	<i>Oct. 2025</i>
MAP5 imaging seminar (Université Paris Cité) <i>Paris, France</i>	<i>Nov. 2024</i>
10 years of the INRIA team MOKAPLAN <i>Fontainebleau, France</i>	<i>June 2024</i>
Statistics, Probabilities, Optimization and Control seminar (Institut de Mathématiques de Bourgogne) <i>Dijon, France</i>	<i>Feb. 2024</i>
Applied Analysis seminar (Institut de Mathématiques de Marseille) <i>Marseille, France</i>	<i>Dec. 2023</i>
Workshop Off-the-grid and Continuous Methods for Optimization and Inverse Problems in Imaging <i>Paris, France</i>	<i>Nov. 2023</i>
Paris-Saclay Signal Seminar <i>Paris, France</i>	<i>Nov. 2023</i>
Imaging in Paris seminar <i>Paris, France</i>	<i>Nov. 2023</i>
Machine Learning and Signal Processing seminar (ENS Lyon) <i>Lyon, France</i>	<i>Oct. 2023</i>
Seminar of the INRIA team MORPHEME <i>Sophia-Antipolis, France</i>	<i>April 2023</i>
Inverse Problems and Mathematical Imaging seminar (University of Graz) <i>Graz, Austria</i>	<i>Nov. 2022</i>
Calculus of Variations seminar (GT CalVa) <i>Paris, France</i>	<i>May 2022</i>

Research visits

Universidad de los Andes, one month (collaborator: Mauricio Velasco) <i>Bogotá, Colombia</i>	<i>Oct. 2019</i>
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Grants

- 5k€ from the Fondation Mathématique Jacques Hadamard, PGMO young project EIT Lift

Service

Responsibilities

- Member of the program committee, SSVM 2025

Reviewing

- Journals: Journal of Mathematical Imaging and Vision, Inverse Problems, Numerische Mathematik, SIAM Journal on Control and Optimization, Electronic Journal of Statistics, Communications on Analysis and Computation
- Conferences: SSVM (2023, 2025)

Dissemination

- Participation to the speed searching event of the European night of researchers 2020
- Contribution to the realization of a radio work for the European night of researchers 2019

Skills

Languages

- French: mother tongue
- English: full professional proficiency (TOEIC 985/990)
- Italian: full professional proficiency
- Spanish: notions

Programming

- Languages: Python (PyTorch, JAX), Julia, Lean (beginner)
- Tools: LaTeX, Git, continuous integration (GitHub Actions)
- OS: Linux, Windows