

# Romain Petit

## Postdoctoral researcher in applied mathematics

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## Experience

### Postdoctoral researcher

MACHINE LEARNING GENOA CENTER (MALGA), DEPARTMENT OF MATHEMATICS, UNIVERSITY OF GENOA

Genoa, Italy

Since Jan. 2023

- Topic: inverse problems for partial differential equations
- Advisor: Giovanni S. Alberti

## Education

### PhD, mathematics

PARIS DAUPHINE UNIVERSITY

Paris, France

2019 - 2022

- Reconstruction of piecewise constant images via total variation regularization: exact support recovery, grid-free numerical methods
- Supervisors: Vincent Duval and Yohann De Castro

### Master of science, mathematics vision and learning (MVA program)

ÉCOLE NORMALE SUPÉRIEURE PARIS-SACLAY

Paris, France

2018 - 2019

- Coursework: variational methods for inverse problems, non-smooth optimization, probabilistic graphical models, kernel methods

### Master of science, applied mathematics and computer science (diplôme d'ingénieur)

ÉCOLE NATIONALE DES PONTS ET CHAUSSÉES

Paris, France

2015 - 2019

- Coursework: convex optimization, functional and Fourier analysis, numerical imaging, computer vision, statistics, machine learning

## Publications

### Exact recovery of the support of piecewise constant images via total variation regularization

2022

WITH YOHANN DE CASTRO AND VINCENT DUVAL

- In preparation

### Towards off-the-grid algorithms for total variation regularized inverse problems

2022

WITH YOHANN DE CASTRO AND VINCENT DUVAL

- Long version, Journal of Mathematical Imaging and Vision
- Short version, proc. of the 8th International Conference on Scale Space and Variational Methods in Computer Vision (SSVM 2021)

## Teaching

### Paris Dauphine University

2019 - 2022

- Algebra (first year), courses and exercise sessions, 60 hours × 2
- Probabilities (first year), exercise sessions, 20 hours

## Selected invited talks

### Inverse problems and mathematical imaging seminar

Graz, Austria

November 2022

### Conference on calculus of variations

Lille, France

July 2021

### French congress of numerical analysis (CANUM)

Evian, France

June 2022

### Calculus of variations (CalVa) seminar

Paris, France

May 2022

### International conference on computational and methodological statistics (CMStatistics)

London, UK

Dec. 2021

### International conference on scale space and variational methods in computer vision (SSVM)

Online

May 2021

## Skills

### Languages

- FRENCH : NATIVE LANGUAGE
- ENGLISH : FULL PROFESSIONAL PROFICIENCY (TOEIC 985/990, ONE YEAR STAY IN THE US)
- SPANISH : PROFESSIONAL PROFICIENCY (THREE-MONTH STAY IN SOUTH AMERICA)

### Programming

- LANGUAGES : PYTHON, JULIA
- OTHERS : L<sup>A</sup>T<sub>E</sub>X, GIT
- OS : LINUX, WINDOWS