

Paul Catala

Postdoc in Applied Mathematics

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<https://paulcat.github.io>

born 30th January 1993

Education

- 2016–2020 **Ph.D. in Applied Mathematics**, *ENS PSL*, Paris, France.
Title: *Positive Semidefinite Relaxations for Imaging Science*.
Advisors: Vincent Duval and Gabriel Peyré
- 2015–2016 **Master of Science MVA**, *ENS Paris-Saclay (ex Cachan)*, Cachan, France.
Mathematics, computer vision, learning
- 2013–2014 **Bachelor Degree**, *Sorbonne University (ex Paris VI)*, Paris, France.
Mathematics
- 2013–2016 **Engineer Degree**, *Télécom ParisTech*, Paris, France.
Major in applied mathematics and image processing
- 2010–2013 **Preparatory classes MP**, *Lycée Henri IV*, Paris, France.
Mathematics, physics, computer science

Professional Experience

- 2020– **Postdoc in Applied Mathematics**, *University of Osnabrück*, Osnabrück, Germany.
Recovery of singular measures from partial measurements. Advisor: Stefan Kunis
- 2014 **Web developer intern**, *Blue Spirit Studio*, Paris, France.
Development (Javascript) of web tools for production management in an animation studio.
Advisor: Jan Roudaut

Teaching

- 2022 **Teaching assistant**, *University of Osnabrück*, Germany, In English.
Mathematics for cognitive sciences (1st year) - Lecturer: S. Kunis
- 2016–2019 **Teaching assistant**, *Paris-Dauphine University*, France, In French.
Algèbre linéaire (L1, 2nd semestre) - Lecturer: A. Afgoustidis
Calcul différentiel et optimisation (L3, 1er semestre) - Lecturer: J. Féjoz
Probabilités multidimensionnelles (L2, 2nd semestre) - Lecturer: J. Trashorras/J. Poisat

Skills

- Programming Matlab (excellent), Python (excellent), C++ (good), Julia (working knowledge)
- Languages French (native), English (bilingual), German (working proficiency), Spanish (basics)

Publications

- 2023 **P. Catala, J.F. Cardoso, V. Duval, G. Peyré**, *A joint diagonalization algorithm for off-the-grid sparse and non-sparse recovery*, In preparation.
- 2022 **P. Catala, M. Hockmann, S. Kunis**, *Sparse super-resolution and its trigonometric approximation in the p -Wasserstein distance*, Accepted for publication, Proc. Appl. Math. Mec.
- P. Catala, M. Hockmann, S. Kunis, M. Wageringel**, *Approximation and interpolation of singular measures by trigonometric polynomials*, Submitted.
- 2020 **P. Catala**, *Semidefinite Relaxations for Imaging Science*, PhD Thesis.
- 2019 **P. Catala, V. Duval, G. Peyré**, *Group-Lasso Wasserstein sans grille*, GRETSI.
- P. Catala, V. Duval, G. Peyré**, *A low-rank approach to off-the-grid sparse super-resolution*, SIAM J. Imaging Science.

Selected conference talks

- 2022 **ICCHA**, *Trigonometric approximations of singular measures*, Munich, Germany.
- GAMM**, *An approximate joint diagonalization algorithm for off-the-grid sparse and non-sparse recovery*, Aachen, Germany.
- Curves and Surfaces**, *Approximating Singular Measures on the Torus with Moment Polynomials*, Arcachon, France.
- 2021 **Neurips OTML Workshop**, *Towards a FFT for measures*, online, (poster).
- 2019 **GRETSI**, *Off-the-grid Wasserstein group-Lasso*, Lille, France.
- AIP**, *A low-rank approach to off-the-grid sparse super-resolution*, Grenoble, France.
- 2017 **SPARS**, *A low-rank approach to off-the-grid sparse deconvolution*, Lisbon, Portugal, (poster).