Valentin De Bortoli
Curriculum Vitae

GENERAL

Birth	13 octobre 1993
Address	64 Avenue du Général Leclerc, Paris
Mail	valentin.debortoli@gmail.com

EDUCATION

Msc, Mathématiques Vision et Apprentissage　　2016-2017
ENS Paris Saclay, Cachan

Agrégation externe　　2015-2016
ENS Paris Saclay, Cachan
    19th/300

First year graduate study　　2014-2015
ENS Paris Saclay, Cachan

Bsc, Mathématiques Fondamentales　　2013-2014
ENS Paris Saclay, Cachan

PROFESSIONAL EXPERIENCE

CNRS researcher　　2022-...
Center for Data Science, Paris
    DATA team.

Postdoctoral researcher　　2020-2022
Oxford University
    In collaboration with Arnaud Doucet.

Phd student　　2017-2020
Centre de Mathématiques et de Leurs Applications (CMLA), Cachan
    Advisors: Agnès Desolneux, Bruno Galerne, Arthur Leclaire.

Teaching assistant　　2017-2020
ENS Paris Saclay
    Differential calculus Teaching Assistant (undergraduate level), reference: Frédéric Pascal.
    Optimization Teaching Assistant (graduate level), reference: Alain Trouvé. Hilbertian analysis
    and Fourier analysis Teaching Assistant (agrégation), reference: Frédéric Pascal.

Intern　　2017
CMLA
    Advisors : Agnès Desolneux, Bruno Galerne and Arthur Leclaire.

Intern　　2015
San Diego State University
    Advisor: Jérôme Gilles.

JOURNAL

Review of wavelet-based unsupervised texture segmentation, advantage of adaptive wavelets 2018
Huang, De Bortoli, Zhou, Gilles
> IET image processing

Patch redundancy in images: a statistical testing framework and some applications 2019
De Bortoli, Desolneux, Galerne
> SIAM Imaging Science

Efficient stochastic optimisation by unadjusted Langevin Monte Carlo. Application to maximum marginal likelihood. 2019
De Bortoli, Durmus, Pereyra, F. Vidal
> Statistics and Computing

Redundancy in Gaussian random fields 2020
De Bortoli, Galerne, Leclaire
> ESAIM: Probability and Statistics

Maximum likelihood estimation of regularisation parameters in high-dimensional inverse problems: an empirical Bayesian approach. Part I: Methodology and Experiments 2020
F.Vidal, De Bortoli, Pereyra, Durmus
> SIAM Imaging Science

Maximum likelihood estimation of regularisation parameters in high-dimensional inverse problems: an empirical Bayesian approach. Part II: Theoretical Analysis 2020
De Bortoli, Durmus, F.Vidal, Pereyra
> SIAM Imaging Science

Maximum entropy methods for texture synthesis 2021
De Bortoli, Desolneux, Durmus, Galerne, Leclaire
> SIAM Journal on Mathematics of Data Science

Bayesian imaging using Plug & Play priors 2021
Laumont, De Bortoli, Alamnsa, Delon, Durmus, Pereyra
> IET image processing

On quantitative Laplace-type convergence results for some exponential probability measures, with two applications 2021
De Bortoli, Desolneux
> JMLR

Convergence of Diffusion Models under the Manifold Hypothesis 2022
De Bortoli
> TMLR

CONFERENCE

Macrocanonical models for texture synthesis 2019
De Bortoli, Desolneux, Galerne
> SSVM

ABC with the Sliced-Wasserstein Distance 2019
Nadjahi, De Bortoli, Durmus, Badeau, Simsekli
> ICASSP

Quantitative Propagation of Chaos for Stochastic Gradient Descent in Wide Neural Networks 2020

De Bortoli, Durmus, Fontaine, Simsekli
    NEURIPS

Convergence rates and approximation results for SGD and its continuous-time counterpart   2021
Fontaine, De Bortoli, Durmus
    COLT

Diffusion Schrödinger bridge with applications to score-based generative modeling   2021
De Bortoli, Thornton, Heng, Doucet
    NEURIPS

Conditional Simulation Using Diffusion Schrödinger Bridges   2022
Shi, De Bortoli, Deligiannidis, Doucet
    UAI

Riemannian Diffusion Schrödinger Bridge   2022
Thornton, Hutchinson, Mathieu, De Bortoli, Teh, Doucet
    ICML

Riemannian score-based generative modeling   2022
De Bortoli, Mathieu, Hutchinson, Thornton, Teh, Doucet
    NEURIPS

Can Push-forward Generative Models Fit Distributions?   2022
Salmona, De Bortoli, Delon, Desolneux
    NEURIPS

A Continuous Time Framework for Discrete Denoising Models   2022
Campbell, Benton, De Bortoli, Rainforth, Deligiannidis
    NEURIPS

SUBMITTED

Convergence of diffusion and their discretizations: from continuous to discrete processes and back   2019
De Bortoli, Durmus

Quantitative uniform stability of the IPF   2021
Deligiannidis, De Bortoli, Doucet

Simulating Diffusion Bridges with Score Matching   2021
De Bortoli, Doucet, Heng, Thornton

On Maximum-a-Posteriori estimation with Plug & Play priors and stochastic gradient descent   2022
Laumont, De Bortoli, Almansa, Delon, Durmus, Pereyra

TALKS (CONFERENCE AND MINISYMPOSIUM)

▶ CIRM Imaging Semester (2018) – Patch redundancy in images: a statistical testing framework and some applications

▶ SSVM (2019) – Macrocanonical models for texture synthesis

▶ NEURIPS (2020) – Quantitative Propagation of Chaos for Stochastic Gradient Descent in Wide Neural Networks

- ▶ Hausdorff School on MCMC (2020) – Continuous and Discrete-Time Analysis of Stochastic Gradient Descent for Convex and Non-Convex Functions

- ▶ SIAM CSE (2021) – Beyond the classical variational regularization: when Bayesian and learning methods come to rescue

- ▶ NEURIPS (2021) – Diffusion Schrödinger bridge with applications to score-based generative modeling

- ▶ IMS (2022) – Riemannian score-based generative modeling

- ▶ INSPS (2022) – Diffusion Schrödinger bridge with applications to score-based generative modeling

- ▶ ICIP (2022) (tutorial) – Stochastic Bayesian methods for imaging inverse problems: from Monte Carlo to score-matching and deep learning (with Delon, Pereyra)

ORGANISATION OF WORKSHOPS/MINISYMPOSIUMS

- ▶ SIAM Imaging 2022 minisymposium (co-organizers: Delon, Almansa, Pereyra) – New Directions in Stochastic Bayesian Imaging Methodology.

- ▶ NEURIPS 2022 workshop on score-based models (co-organizers: Song, Vahdat, Jolicoeur-Martineau, Briol, Gong, Li).

- ▶ Plug and Play workshop (MIA 2022) (co-organizers: Leclaire, Almansa, Hurault).

- ▶ Machine learning assisted scientific computing and sampling - applications in physics (co-organizers: Gabrié, Leliévre)

SEMINARS AND TUTORIALS

- ▶ Centre Borelli (Imaging seminar) – ENS Paris Saclay (2018)

- ▶ Institut Denis Poisson – Université d'Orléans (2018)

- ▶ Institut de Mathématiques de Bordeaux (Probability and Imaging seminar) – Université de Bordeaux (2019)

- ▶ Centre Borelli (Imaging Seminar) – ENS Paris Saclay (2019)

- ▶ Laboratoire de Mathématiques et Applications (ANR MISTIC) – Université de Poitiers (2019)

- ▶ Centre de Mathématiques Appliquées de l'École Polytechnique (SIMPA seminar) – École Polytechnique (2019)

- ▶ Centre de Mathématiques Appliquées de l'École Polytechnique (PEIPS seminar) – École Polytechnique (2019)

- ▶ Département d'informatique (DATA Seminar) – ENS Ulm (2019)

- ▶ Cosines B4Health Seminar (2020)

- ▶ Laboratoire de Mathématiques et Applications (ANR MISTIC) – Université de Poitiers (2020)

▶ Laboratory for Computational and Statistical Learning (Machine learning seminar) – University of Genova (2020)

▶ Statistical Department – Oxford University (2020)

▶ Centre Borelli (Machine Learning seminar) – ENS Paris Saclay (2020)

▶ Cosines B4Health Seminar (2021)

▶ Laboratoire de physique ENS Lyon (SISYPHE Seminar) – ENS Lyon (2021)

▶ Alan Turing institute (ML Seminar) (2022)

▶ Sorbonne Paris North University (2022)

▶ MURI grant seminar (2022)

▶ Georgia Tech ML seminar (2022)

▶ Passau University probability seminar (2022)

▶ Palaiseau ML seminar (2022)

▶ IBM research seminar (2022)

OTHER

Languages	French (mothertongue)
	English (advanced) (627/677 TOEFL exam)
	Italian (basic)
	Spanish (basic)
Programmes	MATLAB, LaTeX, PYTHON (Pytorch, Jax), EMACS
O.S	Linux, Windows