

Alex Delalande

Postdoctoral researcher in Applied Mathematics.

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Research interests

Optimal transportation theory and applications, Convex analysis, Convex optimization, Functional inequalities, Machine learning.

Academic positions and education

- Dec. **Postdoctoral researcher, *Centre Lagrange***, Paris, France.
- 2022–Present Within the Optimal Transport group (Guillaume Carlier, Alessio Figalli, Quentin Mérigot and Filippo Santambrogio).
- 2019 – 2022 **Ph.D. in Applied Mathematics, *Université Paris-Saclay & INRIA***, France.
Title: Quantitative Stability in Quadratic Optimal Transport.
Supervisors: Quentin Mérigot (Laboratoire de Mathématiques d'Orsay) and Frédéric Chazal (INRIA DataShape team).
Defense: December 14, 2022. *Jury:* Yann Brenier, Frédéric Chazal, Julie Delon (president), Max Fathi (referee), Alessio Figalli, Quentin Mérigot, Dejan Slepčev (referee).
- 2018–2019 **M.Sc. MVA "Mathematics, Vision and Learning", *ENS Paris-Saclay***, France.
Grade: 17.3/20, Highest honors.
- 2015–2019 **Diplôme d'ingénieur, *École Centrale Paris (now CentraleSupélec)***, France.
Majoring in Applied Mathematics. - Grade: 4.0/4.3.

Publications and preprints

- 2022 **Quantitative Stability of Barycenters in the Wasserstein Space**, G. Carlier, A. Delalande, Q. Mérigot.
Preprint.
- 2021 **Nearly Tight Convergence Bounds for Semi-discrete Entropic Optimal Transport**, A. Delalande.
AISTATS 2022.
- 2021 **Quantitative Stability of Optimal Transport Maps under Variations of the Target Measure**, A. Delalande, Q. Mérigot.
Duke Mathematical Journal.
- 2019 **Quantitative Stability of Optimal Transport Maps and Linearization of the 2-Wasserstein Space**, Q. Mérigot, A. Delalande, F. Chazal.
AISTATS 2020.

Teaching assistantships

- 2020-2022 **Université Paris-Saclay, ($2 \times 64h$)**.
- Statistical inference (MEU354 - L3)
 - Numerical Analysis with Python (MDD253/MEU255 - L2)
 - Ecology and Statistics (EcoStats - L2)
 - Statistical testing in Biology (Math291 - L2)
- Spring 2020 **CentraleSupélec, (10.5h)**.
- Optimization (2CC3000 - M1)

Reviewing activities

- AISTATS (2022, top 10%)
- SIAM Journal on Imaging Sciences (SIIMS)
- Information and Inference: A Journal of the IMA

Talks and Poster Presentations

- Jan. 2023 **Workshop *Interpolation of measures***, Lagrange Center, Paris, France.
- June 2022 **Mokaplan team seminar**, Paris, France.
- June 2022 **Journées SMAI MODE 2022**, Limoges, France.
- May 2022 **DataShape team seminar**, Porquerolles, France.
- Mar. 2022 **AISTATS 2022**, Online.
- Nov. 2021 **Optimal Transport working group**, Orsay, France.
- Nov. 2021 **Workshop *Schrödinger Problem and Mean-field PDE Systems: Computational and Theoretical Advances***, CIRM, Marseille, France.
- June 2021 **PhD days in Analysis**, Orsay, France.
- Aug. 2020 **AISTATS 2020**, Online.
- Dec. 2019 **NeurIPS 2019 "Optimal Transport and Machine Learning" Workshop**, Vancouver, Canada.
- Nov. 2019 **DataShape team seminar**, Porquerolles, France.

Other experience

- Feb. 2018 – Jul. 2018 **Research internship - Deep Learning & Computer Vision**, *Institute for Info-comm Research, A*STAR*, Singapore.
Conditional Random Fields and Deep Learning for multi-label classification. Awardee of the Singapore International Pre Graduate Award.
Supervisors: Foo Chuan-Sheng and Vijay Chandrasekhar
- Jul. 2017 – Jan. 2018 **Data Science internship - Statistics & Economics**, *Head of Statistics, Banque de France*, France.
Modeling of the French international trade in services.
Supervisor: Martial Ranvier
- 2017 **Software Engineering mission**, *CNRS*, France.
Translation of 18 of Gabriel Peyré's *Numerical Tours of Data Science* tutorials from Python to R: principles of Wavelet Data Processing, Denoising, Edge Detection and Manifold Learning.

Computer skills

Languages	Python	<i>TensorFlow, PyTorch, Scikit-Learn, Pandas, Numpy</i>
	R	<i>ggplot, tidy, leaflet, shiny, imager, caret, nnet</i>
	Matlab, C	
Others	Unix, Git	GitHub: alex-delalande

Languages

French	Native	
English	Fluent	<i>TOEFL iBT: 110/120, October 2017</i>
Spanish	Intermediate	

Referees

Quentin Mérigot

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Guillaume Carlier

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