

# Clément Bonet

## Curriculum Vitae

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### Education

- 2020 — 2023  
**Laboratoire de Mathématiques de Bretagne Atlantique (LMBA), PhD,** *Université Bretagne Sud*, Vannes, Bretagne, France  
Title: Leveraging Optimal Transport via Projections on Subspaces for Machine Learning Applications  
Supervisors: François Septier, Nicolas Courty and Lucas Drumetz.
- 2019 — 2020  
**Ecole Normale Supérieure Paris-Saclay, Master 2 MVA (Mathematics, Machine Learning and Computer Vision),** Cachan, France.  
Convex Optimization, Computational Statistic, Probabilistic Graphical Model, Deep Learning, Kernel Methods, Bayesian Machine Learning. High Honors.
- 2017 — 2020  
**Télécom Paris**, Paris, France  
Majors: Data Science, Random Modelization and Scientific Computing.

### Professional Experiences

#### Positions

- 2023 — 2024  
**Postdoctoral researcher**, *ENSAE, CREST*, Palaiseau, France
- 2020 — 2023  
**PhD**, *Université Bretagne Sud, LMBA*, Vannes, Bretagne, France

#### Teaching Assistant

- 2023  
**Regression Model (L3)**, *Université Bretagne Sud*, Vannes, France
- 2022  
**Linear Regression and Simulation Methods (L3)**, *Université Bretagne Sud*, Vannes, France
- 2021  
**Mathematic Statistics (L3)**, *Université Bretagne Sud*, Vannes, France

#### Internships

- 2020  
**Research Internship**, *MAP5*, Paris, France  
Supervisors: Raphaël Lachîze-Rey, Pierre Latouche and Antoine Marchina.  
Study of a subsampling algorithm using Gaussian Random Fields (<https://github.com/clbonet/Internship-MVA>).
- 2019  
**Data Analyst Internship**, *Sodexo Benefits & Rewards Services*, Ixelles, Bruxelles  
Establishment analysis of VISA and MasterCard reimbursement data as part of the replacement affiliate scholarship.

## Web Development Internship, ZenyWay, Paris, France

I developed the frontend interface of ZenyPass, a password manager.

## Publications

- [1] Clément Bonet, Paul Berg, Nicolas Courty, François Septier, Lucas Drumetz, and Minh-Tan Pham. "Spherical Sliced-Wasserstein". In: *International Conference on Learning Representations*. 2023.
- [2] Clément Bonet, Laetitia Chapel, Lucas Drumetz, and Nicolas Courty. "Hyperbolic Sliced-Wasserstein via Geodesic and Horospherical Projections". In: *Proceedings of 2nd Annual Workshop on Topology, Algebra, and Geometry in Machine Learning (TAG-ML)*. Vol. 221. Proceedings of Machine Learning Research. PMLR, 2023, pp. 334–370.
- [3] Clément Bonet, Benoît Malézieux, Alain Rakotomamonjy, Lucas Drumetz, Thomas Moreau, Matthieu Kowalski, and Nicolas Courty. "Sliced-Wasserstein on Symmetric Positive Definite Matrices for M/EEG Signals". In: *Proceedings of the 40th International Conference on Machine Learning*. Vol. 202. Proceedings of Machine Learning Research. PMLR, 2023, pp. 2777–2805.
- [4] Guillaume Mahey, Laetitia Chapel, Gilles Gasso, Clément Bonet, and Nicolas Courty. "Fast Optimal Transport through Sliced Wasserstein Generalized Geodesics". In: *Advances in Neural Information Processing Systems*. 2023.
- [5] Clément Bonet, Nicolas Courty, François Septier, and Lucas Drumetz. "Efficient Gradient Flows in Sliced-Wasserstein Space". In: *Transactions on Machine Learning Research* (2022).
- [6] Clément Bonet, Titouan Vayer, Nicolas Courty, François Septier, and Lucas Drumetz. "Subspace Detours Meet Gromov-Wasserstein". In: *Algorithms* 14.12 (2021), p. 366.

## Preprints

- [7] Thibault Séjourné, Clément Bonet, Kilian Fatras, Kimia Nadjahi, and Nicolas Courty. *Unbalanced Optimal Transport meets Sliced-Wasserstein*. 2023.

## Other Research Experiences

Reviews I have reviewed at different conferences: AISTATS2022,2023, ICML2022 (Out-standing Reviewer), ICML2023, Neurips2022, 2023.

Open source Contributor to the Python Optimal Transport library: <https://pythonot.github.io>: I implemented the algorithm to solve the Wasserstein distance on the circle along with the Spherical Sliced-Wasserstein distance.

### Talks

03/07/2023 Spherical Sliced-Wasserstein. CAp 2023.

13/12/2021 Subspace Detours Meet Gromov-Wasserstein. Spotlight poster at the Neurips Workshop OTML2021.

18/11/2021 Sliced-Wasserstein Gradient Flows. GDR ISIS OTML.

## Languages

French Native Speaker



English 623/677 TOEFL ITP (January 2019)



## Skills

Programming Python ★★★★★, LaTeX ★★★★★

Basic R, Java, C, C++, SQL, HTML, CSS, Javascript.

Data Science Scikit-learn, Pytorch

Tools Git

*Program Version Control and Program Repositories.*

OS Linux

*Daily use.*