

Théo Uscidda

French and Italian passports • Born 19-08-1998

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EDUCATION

ENSAE – IP Paris, Area of Paris, France

Oct 2021 to Oct 2025 (*Expected*)

Ph.D. Candidate at the Center for Research in Economics and Statistics (CREST)

- Research interests: Optimal Transport, Generative Modeling, and applications to Single-Cell Biology.
- Advised by [Marco Cuturi](#) (Apple MLR Paris – CREST).

École Normale Supérieure Paris-Saclay, Area of Paris, France

Sept 2020 to Sept 2021

MRes “Mathématiques, Vision, Apprentissage” (MVA) - Achieved with Highest Honors, GPA: 4.0/4.0

Relevant coursework: Convex Optimization, Topological Data Analysis, Computational Statistics, Probabilistic Graphical Model, Computational Optimal Transport, Kernel Methods, Theoretical Foundations of Deep Learning, Sparse Signal Representation, Bayesian Machine Learning, Machine Learning for Time Series.

Télécom Paris – IP Paris, Area of Paris, France

Sept 2018 to Sept 2021

Engineering Degree – Achieved with Highest Honors, GPA: 4.0/4.0

- Major in Mathematics, Minor in Computer Science.

PROFESSIONAL EXPERIENCE

Technical University of Munich, Munich, Germany | *Research Visit*

Feb 2024 – To be determined

Helmholtz Munich – Institute for Computational Biology (ICB)

- Topic: Optimal Transport-based Generative Modeling for Single-Cell Biology.
- Advised by [Fabian Theis](#) (ICB).

Sorbonne Université, Paris, France | *Master Thesis*

Apr 2021 – Sept 2021

Laboratory of Probability, Statistics and Modeling (LPSM)

- Topic: Federated Missing Data Imputation using Optimal Transport.
- Co-advised by [Claire Boyer](#) (LPSM), [Julie Josse](#) (INRIA PreMeDiCaL), and [Boris Muzellec](#) (Owkin, ex INRIA SIERRA).

Telecom Etude (Junior Enterprise), Paris, France | *Project Manager*

Apr 2019 – Apr 2020

Student-run consulting firm with 40 years of experience, certified ISO 9001

- Provide an interface between companies and student entrepreneurs to realize missions focused on machine learning. Supervised 10 missions in parallel with my 4th-year bachelor's degree, generating a revenue of 10.3k\$.

Corsica Ferries, Bastia, France | *Summer R&D Intern*

Jun 2019 – Sept 2019

The leading ferry operator for tourism and cargo on the Western Mediterranean Sea

- Implemented a dynamic pricing algorithm for travel tickets, using data continuously gathered on the company's website.

PUBLICATIONS & PREPRINTS

- Generative Entropic Neural Optimal Transport to Map Within and Across Spaces**, Dominik Klein*, [Théo Uscidda*](#), Fabian J. Theis, Marco Cuturi, *arXiv Preprint, arXiv:2310.09254*.
- Unbalancedness in Neural Monge Maps Improves Unpaired Domain Translation**, Luca Eyring*, Dominik Klein*, [Théo Uscidda*](#), Giovanni Palla, Niki Kilbertus, Zeynep Akata, Fabian *International Conference on Learning Representations (ICLR) 2024*.
- The Monge Gap: a Regularizer for All Transport Maps**, [Théo Uscidda](#), Marco Cuturi, in *Proceedings of the 40th International Conference on Machine Learning (ICML)*, 2023.

SOME PROJECTS

Co-supervision of [Adam David](#)'s master thesis | with Prof. [Anna Korba](#)

Apr 2023 – Sept 2023

- Topic: Towards extending Wasserstein gradient flows to general strictly convex and translation invariant cost functions.
- 6-month internship as part of the MRes “Mathématiques de l’Aléatoire” (MDA), jointly accredited by Université Paris-Saclay and École Normale Supérieure (ENS) Paris.

- Designed an algorithm to detect high-frequency traders from behavioral variables based on order and transaction data provided by the AMF (French Financial Markets Authority).
- Top 1%; invited by the AMF to present the work to the France and Quebec Data Intelligence team.

TEACHING ASSISTANT

Taught **150 hours** of **tutorial classes** to both **undergraduate** and **graduate students** at ENSAE – IP Paris.

- **Statistical Learning Theory** (Prof. [A. Stromme](#)): **graduate** course, **30 students**, taught in 2023.
- **Computational Optimal Transport** (Prof. [M. Cuturi](#)): **graduate** course, **50 students**, taught in 2022 & 2023.
- **Deep Learning** (Prof. [M. Cuturi](#)): **graduate** course, **50 students**, taught in 2022 & 2023.
- **Probability Theory** (Prof. [VE. Brunel](#)): **undergraduate** course, **30 students**, taught in 2022.
- **Introduction to Machine Learning** (Prof. [V. Perchet](#)): **undergraduate** course, **30 students**, taught in 2022.
- **Simulation & Monte Carlo** (Prof. [N. Chopin](#)): **undergraduate** course, **30 students**, taught in 2022.
- **Functional & Convex Analysis** (Prof. [L. Deuceusefond](#)): **undergraduate** course, **30 students**, taught in 2021 & 2022.
- **Applied Statistical Learning** (Prof. [M. Hebiri](#)): **graduate** course, **50 students**, taught in 2021.

TALKS & POSTER SESSION

- **Université Paris-Saclay Welcome Day**, Institut des Hautes Études Scientifiques (IHES), Area of Paris, October 2023. “*Optimal Transport & Deep Learning*” [1h Talk].
- **International Conference on Machine Learning (ICML)**, Honolulu, July 2023. “*The Monge gap: a Regularizer for All Transport Maps*” [Poster session].
- **Student Statistical Seminar**, CREST, Area of Paris, May 2023. “*The Monge gap: a Regularizer for All Transport Maps*” [30min Talk].

ACADEMIC SERVICE

- **Conference Reviewer:** International Conference on Machine Learning (ICML) 2023, Neural Information Processing Systems (NeurIPS) 2023.
- **Journal Reviewer:** Journal of Machine Learning Research.

SOFTWARE

- **OTT-JAX**, Contributor, <https://github.com/ott-jax/ott>.

SKILLS & EXTRACURRICULAR

Technology: Python, JAX, PyTorch, TensorFlow, Scikit-Learn, Latex, Spark, C, C++, Java, SQL, Matlab.

Languages: French (native), English (fluent), Italian (fluent).