

Bastien Dussap

PhD student in mathematics

* 17 June 1998

☎ 07 77 99 21 57

✉ bastien.dussap@universite-paris-saclay.fr

🐦 BastienDussap

🌟 [bastiendussap](https://github.com/bastiendussap)

Il n'y a pas besoin de peule pour dériver.

Education

- 2021–2024 **PhD thesis in Machine Learning**, *Université Paris Saclay*
PhD thesis in Machine Learning apply to the comparison of Cytometric data.
- 2019–2021 **Master Mathématiques et Applications**, *Université Paris Saclay*
Master's degree in Mathematics apply to Artificial Intelligence.
- 2016–2019 **Licence de Mathématiques**, *Université Paris Saclay*
Bachelor's degree of Mathematics. The first two years at Evry and the last one at Orsay.

PhD thesis

- Title *Cytometric data comparison*
- Supervisors Gilles Blanchard and Marc Glisse
- Abstract PhD thesis in partnership with Metafora biosystem a bio-engineering compary. The company has created a software, Metaflow, that allows automatic analysis of flow cytometry data. My work focuses on the use of machine learning models to transfer the analysis performed on one sample to a new unanalysed one. We rely on Reproducing Kernel Hilbert space to embed and store high-dimensional features in Euclidian Space. We use these representations to, firstly, estimate the proportions of each population in a new sample, and secondly to automatically name the cluster obtained by metaflow.

Experience

Teaching

- 2022–2023 **Mathematics for Management**, *IUT Sceaux*, L1 B.U.T GEA
Taught by Patrick Pamphile.

Seminar

- 2022–2024 **Seminar**, *Université Paris-Saclay*, Master 2
Co-organizer of the seminar for master students in Statistics and Machine Learning at Université Paris-Saclay.

Publication

2023 **Label Shift Quantification with Robust Guarantees via Distribution Feature Matching** , *preprint*, With Gilles Blanchard and Badr-Eddine Chérief-Abdellatif

Quantification learning deals with the task of estimating the target label distribution under label shift. There exist two main classes of quantifiers in the literature: classification-based methods vs statistical mixture modeling approaches. In this paper, we propose an efficient and scalable quantifier that belongs to the second class, and we present a unifying framework based on feature distribution matching that recovers estimators from both quantification families. In particular, we derive a general consistency theorem under label shift which improves upon the bounds that can be found in the literature, investigate the misspecified setting where the exact label shift hypothesis is challenged, and provide a detailed numerical study on simulated and real-world datasets.

Languages

French

Native

English

B2

CEFR rating

Computer skills

basic knowledge

intermediate knowledge with some project experience

extensive project experience

deepened expert knowledge

expert / specialist

| | Level | Skill | Years | Comment |
|-----------|--|---------------------------------|-------|---|
| Language: | <div><div></div><div></div><div></div><div></div><div></div></div> | Python | 4 | <i>Used Python and standard Machine Learning packages such as numpy, matplotlib, scikit-learn or pytorch. Creation of custom package.</i> |
| | <div><div></div><div></div><div></div><div></div><div></div></div> | R | 1 | <i>Used R for Machine Learning project during my education.</i> |
| | <div><div></div><div></div><div></div><div></div><div></div></div> | Zotero | 3 | <i>Used Zotero during the PhD to manage my bibliography.</i> |
| | <div><div></div><div></div><div></div><div></div><div></div></div> | L ^A T _E X | 5 | |
| OS: | <div><div></div><div></div><div></div><div></div><div></div></div> | Linux | 4 | <i>I only use Ubuntu for work.</i> |
| | <div><div></div><div></div><div></div><div></div><div></div></div> | Windows | 10+ | <i>Use Windows at home.</i> |