Etienne LASALLE
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📅 August 21, 1994
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My work concerns the statistical analysis of graph-structured data using tools from topological data analysis (TDA). I work on developing and studying multiscale comparison tools for graphs. The resulting statistical guarantees ensure the asymptotic validity of two-sample tests. The implementation of these methods has allowed to confront them to practical questions, mainly in the framework of machine learning and neural network classifiers.

Statistics   Graphs   Topological data analysis   Two-sample tests

🎓 STUDIES

2019-   *Ph.D,* Université Paris-Saclay and Inria Saclay, France.
Statistical foundations of topological data analysis for graph-structured data.
Supervision : Frédéric Chazal and Pascal Massart.

2015-2019   *Ecole Normale Supérieure Paris-Saclay.*

> 2019   *Graduated from ENS Paris Saclay,* France
> 2018   *MSc in Probability and Statistics,* Université Paris-Saclay, France

2012-2015   *Preparatory classes,* Lycée Faidherbe, Lille, France

📖 PUBLICATIONS

Preprints

2021   *Heat diffusion distance processes : a statistically founded method to analyze graph data sets.*
arxiv:2109.13213

🏆 AWARDS

2021   *Winner of a Math-Company challenge (AMIES).* With O. Hacquard and V. Lebovici.
Reconstruction of trajectories from noisy real life 3D detection of people.
Challenge AMIES

💬 TALKS

Juin 2022   **Journées de Statistique de la SFdS**, Lyon.
Analyse statistique de graphes, via des processus de diffusion de la chaleur.

Juin 2022   **Machine Learning and Signal Processing Seminar**, ENS, Lyon.
Heat diffusion distance processes for graphs and their application to distribution shift detection.

Juin 2022   **Celeste team's seminar**, LMO, Orsay.
Heat diffusion distance processes for graphs and their application to distribution shift detection.

Mar. 2022   **Work group of the Probability-Statistics team**, LMO, Orsay, France.
Presenting *Identifying the deviator.* arxiv:2203.03744

Dec. 2021   **Forum des Jeunes Mathématicien.ne.s**, Besançon, France.
Statistical analysis of graph structured data, via heat diffusion processes.

Oct. 2021	**Colloque Jeunes Probabilistes et Statisticiens**, Ile d'Oléron, France *Statistical analysis of graph structured data, via heat diffusion processes.*
Oct. 2021	**Work group of the Probability-Statistics team**, LMO, Orsay, France. Presenting *Finding Adam in random growing trees.* arxiv:1411.3317
Oct. 2021	**Datashape seminar**, INRIA Saclay, France. *Statistical analysis of graph structured data, via heat diffusion processes.*
Mar. 2021	**Vulgarization seminar for Ph.D. students**, Université Paris-Saclay, France. *Gaussian approximations for random functions.*

💼 RESEARCH EXPERIENCE

October 2018 -July 2019	**Pre-doctoral Year, EPFL, Lausanne, Switzerland.** ❯ Probabilistic and statistical studies of topological features for random graph analysis, in the context of Neuro-science. @ kathryn.hess@epfl.ch
April 2018 -July 2018	**Master internship, INRIA-SACLAY, Palaiseau, France** ❯ Development of anomaly detection methods based on tools and features from topological data analysis. @ frederic.chazal@inria.fr
April 2017 -July 2017	**Master (1st year) internship, SIMON FRASER UNIVERSITY, Vancouver, Canada** ❯ Bio-Informatics : unsupervised clustering on tuberculosis genomic data. @ cedric.chauve@sfu.ca @ leonid@sfu.ca
January 2016 -June 2016	**Internship, ENS PARIS-SACLAY, Cachan, France** ❯ Numerical Hydrology : modeling water flow on elevation grids. @ moreljeanmichel@gmail.com @ marc.lebrun.ik@gmail.com

👥 TEACHING

At IUT d'Orsay

2019-2022	*Modélisation* (linear algebra, diagonalization, Python practicals)
2020-2022	*Probabilités/Statistiques* (usual discrete and continuous distributions, approximation theorems, central limit theorem, estimators, statistical tests)
2019-2020	*Mathématiques Discrètes* (logic, linear algebra basics)

Others

January 2021	*Scientific mediation,* with la Maison d'Initiation et de Sensibilisation aux Sciences. Construction and animation of "science/society" debate sessions for high-school students.
2017-2018	*Mentoring,* three students from the Villebon-Charpak institute, Orsay, France.

🔑 SKILLS

Code and IT

❯ Python Github R
❯ GUDHI (Python library for TDA)
❯ LaTex ipe

Languages

French	●●●●●
English	●●●●○
German	●○○○○

☕ INTERESTS

❯ Climbing
❯ Hiking, skiing, paragliding.
❯ Music, photography.