

Yassine Laguel

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<https://yassine-laguel.github.io>

Education

- 2018–2021 **Phd in Optimization and Machine Learning**, *Supervised by Jérôme Malick, Université Grenoble Alpes, Grenoble.*
- 2017–2018 **Master of Sciences in Industrial and Applied Mathematics (MSIAM)**,
Master 2, Statistics track, Grenoble.
- 2015–2018 **Ecole Nationale Supérieure de l'Informatique et des Mathématiques Appliquée (ENSIMAG)**,
Engineering School, Financial Engineering track, Grenoble.
- 2012–2015 **Classes Préparatoires MPSI-MP***,
Lycée Blaise Pascal, Orsay, Math & Physics track.
- 2012 **Baccalauréat Option Sciences**,
Lycée Blaise Pascal, Orsay, High honors.

Scientific publications

- 2021 **Chance constrained problems : a bilevel convex optimization perspective**, *Yassine Laguel, Wim Van Ackooij, Jérôme Malick*, Submitted to Computational Optimization and Applications.
<https://yassine-laguel.github.io/files/taco-paper.pdf>
- 2021 **Superquantiles at Work : Machine Learning Applications and Efficient (Sub)gradient Computation**, *Yassine Laguel, Krishna Pillutla, Jérôme Malick, Zaid Harchaoui*, To appear in Set-Valued and Variational Analysis.
<https://yassine-laguel.github.io/files/svaa-paper.pdf>
- 2021 **On the convexity of level-sets of probability functions**, *Wim Van Ackooij, Yassine Laguel, Jérôme Malick, Guilherme Matiussi Ramalho*, To appear in the Journal of Convex Analysis.
<https://yassine-laguel.github.io/files/transconcavity-paper.pdf>
- 2021 **Device Heterogeneity in Federated Learning : A Superquantile Approach**, *Yassine Laguel, Krishna Pillutla, Jérôme Malick, Zaid Harchaoui*, Proceedings of the 55th Annual Conference on Information Sciences and Systems (CISS 2021).
<https://arxiv.org/abs/2002.11223>
- 2020 **Randomized Progressive Hedging methods for Multi-stage Stochastic Programming**, *Gilles Bareilles, Yassine Laguel, Dmitry Grishchenko, Franck lutzeler, Jerome Malick*, Annals of Operations Research.
<https://arxiv.org/abs/2009.12186>
- 2020 **First Order Optimization for superquantile-based supervised learning**, *Yassine Laguel, Jérôme Malick, Zaid Harchaoui*, MLSP 2020 - Best Student Paper Award.
<https://arxiv.org/abs/2009.14575>

Softwares

- Python **TACO**, *A Toolbox for chAnce Constrained Optimization*, Yassine Laguel, Wim Van Ackooij, Jérôme Malick.
<https://yassine-laguel.github.io/taco/>

- Julia **RandomizedProgressiveHedging.jl**, *A toolbox for solving multistage stochastic problems by randomized versions of the progressive hedging algorithm*, Gilles Bareilles, Yassine Laguel, Dmitry Grishchenko, Franck Iutzeler, Jérôme Malick.
<https://yassine-laguel.github.io/RandomizedProgressiveHedging.jl/stable/>
- Python **SPQR**, *A toolbox for superquantile minimization*, Yassine Laguel, Jérôme Malick, Zaid Harchaoui.
<https://yassine-laguel.github.io/spqr/>

Scientific Talks and Poster

- 2021 **Risk-sensitive learning for heterogeneous frameworks**, *Talk*, Journée des statistiques. Nice, France
- 2021 **On hidden convexity in chance constrained problems**, *Talk*, ANSI Seminar. Los Alamos, USA
- 2021 **Device Heterogeneity in Federated Learning : A superquantile approach**, *Poster*, Workshop on Communication Efficient Distributed Optimization. Online Seminar
- 2020 **Device Heterogeneity in Federated Learning : A superquantile approach**, *Talk*, Federated Learning One World Seminar, <https://www.youtube.com/watch?v=W-oNzU04Y8I>. Online Seminar
- 2020 **First-order optimization for superquantile-based supervised learning**, *Talk*, MLSP. Espoo, Finland
- 2020 **A DC approach for chance constraints**, *Talk*, SMAI-MODE, <https://www.youtube.com/watch?v=KB3sV-trEy4&list>. Saclay, France
- 2020 **Handling Device Heterogeneity in Federated Learning**, *Poster*, Optimization for Machine Learning. Marseille, France
- 2020 **Practical Minimization of CVar-based Risk functions**, *Talk*, ROADEF. Montpellier, France
- 2019 **Sur l'usage de la transconcavité pour les problèmes avec contraintes en probabilités**, *Talk*, Journées annuelles du GDR MOA 2019. Rennes, France
- 2019 **On the interplay between generalized concavity and chance constraints**, *Talk*, IC-COPT 2019. Berlin, Germany
- 2019 **1st Order Methods for Minimization of Superquantile-based Risk Measures**, *Talk*, ICSP 2019. Trondheim, Norway

Teaching Activities

- 2021 **Distributionally robust machine learning (4h)**, *University of Washington*, Graduate Course, Guest Lecture.
- 2021 **Introduction to Federated Learning (1.5h)**, *ENSIMAG*, 2nd Year, Guest Lecture.
- 2020 **Introduction to R (30h)**, *Université Grenoble Alpes*, L1, Practical Work.
- 2019-2020 **Introduction to Python (2x30h)**, *Université Grenoble Alpes*, M1 SSD, Lectures and Practical Work.
- 2019 **Convex and Distributed Optimization (18h)**, *Université Grenoble Alpes*, M2 MSIAM, Lecture and Practical Work.
- 2019 **Numerical Optimization (25h)**, *ENSIMAG*, 2nd Year, Directed Studies and Practical Work.

- 2019 **Introduction to R (30h)**, *Université Grenoble Alpes*, Bachelor 1st Year, Practical Work.
- 2016-2017 **Fundamentals of Analysis and Algebra (50h)**, *Grenoble INP*, Bachelor 1st Year, Directed Studies.
- 2015-2016 **Fundamentals of Analysis and Algebra (50h)**, *Université Grenoble Alpes*, Bachelor 1st/2nd Year, Directed Studies.

Work Experience

- 2018 **Research Internship**, *University of Washington*, Seattle.
First order methods for superquantile regression
- 2017 **Research Internship**, *EDF R&D*, Saclay.
On transconcavity and eventual convexity of chance constrained problems.
- 2017 **Conception and implementation of a transport management algorithm for an international firm**, *Consulting for a french company*.
Realization of an optimized algorithm for a transport network consisting of hundreds of sites and thousands of trucks.
- 2016 **Research Internship**, *WeSave, Financial Startup*, Paris.
Research Internship in mathematical finance, on the establishment of quantitative criterion based on correlations matrices to anticipate crises
- 2013 **Member of the Jury**, *ITYM*, IASI, Roumanie.
Member of the Jury at the International Tournament of Young Mathematicians (ITYM).

Service

Founder and Organizer of GORGeous (Grenoble Optimization Reading Group).
<https://sites.google.com/view/gorgeous-optim/>

Prizes

- 2020 **Best Student Paper Award**,
MLSP 2020, Espoo, Finland.
- 2012 **Finalist of the International Tournament of Young Mathematicians (ITYM)** ,
Orsay, France.
Rank : 3rd
- 2012 **Finalist of the french tournament of young mathematicians (TFJM)** ,
Saclay, France.
Rank : 1st ex-aequo

Computer Skills

Languages PYTHON, JULIA, JAVA, C/C++, ADA, R, SQL, HTML/CSS, JAVASCRIPT, BASH, OCAML, LATEX

Operating Systems Mac OS/X, Windows, Linux

Languages

French Mother tongue

English Advanced. Score TOEFL IBT : 93

Hobbies

- Olympic Mathematics, Music, Hiking