Yassine Laguel

36, Boulevard Maréchal Foch
Grenoble, France 38000
(+33) 7 85 96 10 20
laguel.yassine@gmail.com
https://yassine-laguel.github.io

Education

2022–Present **Postdoctoral researcher at Rutgers Business School**, *Working with Mert Gürbüzbalaban*, New Brunswick, USA.

2018–2021 **Phd in Optimization and Machine Learning**, *Supervised by Jérôme Malick, Université Grenoble Alpes*, Grenoble, France.

2017–2018 **Master of Sciences in Industial and Applied Mathematics (MSIAM)**, *Master 2, Statistics track*, Grenoble, France.

2015–2018 **Ecole Nationnale Supérieure de l'Informatique et des Mathématiques Appliquée (ENSIMAG)**, *Engineering School, Financial Engineering track*, Grenoble, France.

2012–2015 **Classes Préparatoires MPSI-MP***, *Lycée Blaise Pascal*, Orsay, France, Math & Physics track.

2012 **Baccalauréat Option Sciences**, *Lycée Blaise Pascal*, Orsay, France, High honors.

Scientific publications

2022 **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

2022 **Superquantile-based learning : a direct approach using gradient-based optimization**, *Yassine Laguel, Jérôme Malick, Zaid Harchaoui*, To appear in the Journal of Signal Processing Systems.
https://yassine-laguel.github.io/files/2021_jsps.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 55^{th} 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 Iutzeler, 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 **Convex risk measures : models, algorithms and applications in federated learning**, *Talk*, Thoth Seminar.
Montbonnot, France

2021 **Risk-averse optimization : models, algorithms, and applications in machine learning**, *Talk*, PhD Defense.
Grenoble, France

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*, ICCOPT 2019.
Berlin, Germany

2019 1^{st} **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*, 2^{nd} 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*, 2^{nd} Year, Directed Studies and Practical Work.

2019 **Introduction to R (30h)**, *Université Grenoble Alpes*, Bachelor 1^{st} Year, Practical Work.

2016-2017 **Fundamentals of Analysis and Algebra (50h)**, *Grenoble INP*, Bachelor 1^{st} Year, Directed Studies.

2015-2016 **Fundamentals of Analysis and Algebra (50h)**, *Université Grenoble Alpes*, Bachelor $1^{st}/2^{nd}$ 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

2019-2021 **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 : 3^{rd}

2012 **Finalist of the french tournament of young mathematicians (TFJM)** ,
Saclay, France.
Rank : 1^{st} 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