

# Mehdi Christian Talbi

## Curriculum Vitae

ETH Zürich  
Rämistrasse 101, 8092 Zürich, Switzerland  
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### Research interests

Mean field optimal stopping & control, mean field games, contract theory, backward SDEs, mathematical finance, numerics...

### Education

- 2019-2022 **PhD, Applied Mathematics**, *Institut Polytechnique de Paris*, Palaiseau.  
Subject: Mean field optimal stopping. Supervised by Nizar Touzi & Jianfeng Zhang.
- 2015-2019 **“Élève-normalien” (recruited on competitive exam) at École Normale Supérieure Paris-Saclay**, *ENS Paris-Saclay (formerly ENS Cachan)*, Cachan.
- 2018 **MSc Probability and Finance, Applied Mathematics**, *École polytechnique/Sorbonne université*, Paris.
- 2016 **BSc, Mathematics**, *ENS Paris-Saclay and Université Paris-Diderot*, Paris.

### Experience

- 2022-present **Postdoctoral researcher**, *ETH Zürich*, Zürich.
- 2019-2022 **PhD student and teaching assistant**, *École polytechnique*, Palaiseau.
- 2018-2019 **Visiting student**, *University of Southern California*, Los Angeles, one year pre-doctoral research internship, part of my degree at ENS Paris-Saclay. Supervised by Jianfeng Zhang.
- 2018 **Quantitative analyst intern**, *BNP Paribas*, London, six months off-cycle internship.
- 2017 **Research intern**, *Inria Grand-Est*, Nancy, four months research internship.

### Scientific activities

#### Preprints

4. Talbi, M. A finite-dimensional approximation for partial differential equations on Wasserstein space. *ArXiv:2211.00719* (2022).
3. Talbi, M., Touzi, N. & Zhang, J. From finite population optimal stopping to mean field optimal stopping. *ArXiv:2210.16004* (2022).

#### Accepted papers

2. Talbi, M., Touzi, N. & Zhang, J. Viscosity solutions for obstacle problems on Wasserstein space. *SIAM Journal on Control and Optimization* **61**, 1712–1736 (2023).
1. Talbi, M., Touzi, N. & Zhang, J. Dynamic programming equation for the mean field optimal stopping problem. *SIAM Journal on Control and Optimization*, accepted (2023).

#### Talks in international conferences and workshops

- Jun. 2023 11th General AMaMeF Conference, Bielefeld, Germany.
- Jun. 2023 SIAM Conference on Financial Mathematics and Engineering, Philadelphia, United States.
- May. 2023 Workshop on Applications of Stochastic control to Economics and Finance, Banff, Canada.
- Apr. 2023 Workshop on Stochastic control and Risk, Hammamet, Tunisia.
- Mar. 2023 16th German Probability and Statistics Days, Essen, Germany.

- Jan. 2023 15th Bachelier colloquium in mathematical finance and stochastic calculus, Métabief, France.
- Jun. 2022 9th colloquium on BSDEs and mean field systems, Annecy, France.
- Aug. 2021 6th Berlin workshop for Young Researchers in mathematical finance, online.
- Jun. 2021 Summer school on Distributed Control: Decentralization and Incentives, Luminy, France.
- Sep. 2020 13th European Summer School in financial mathematics, Vienna, Austria.

#### Talks in seminars

- Jun. 2023 Mathematical finance seminar, Humboldt Universität, Berlin, Germany.
- Mar. 2023 LSPM financial and actuarial mathematics seminar, Sorbonne Université, Paris, France.
- Dec. 2022 Seminar in financial and insurance mathematics, ETH Zürich, Zürich, Switzerland.
- Jan. 2022 Seminar in financial & actuarial mathematics, University of Michigan, online.
- Oct. 2021 PhD seminar in mathematical finance, Sorbonne Université, Paris, France.
- Apr. 2021 GT Modèles stochastiques en finance, École polytechnique, Palaiseau, France.

#### Referee activities

Invited reviewer for: *Transactions of the AMS*, *SIAM Journal on Control and Optimization*, *Stochastic Processes and their Applications*, *Mathematical Control and Related Fields*, *ESAIM: Control, Optimisation and Calculus of Variations*

## Teaching activities

#### Classes

- 2022-2023 Mathematical finance and stochastic calculus (ETH Zürich, Msc): surrogate lecturer.
- 2020-2022 Introduction to Python (École polytechnique, MAP361P): teaching assistant.
- 2019-2022 Stochastic calculus in finance (École polytechnique, MAP552): teaching assistant for Python sessions.
- 2019-2022 Introduction to statistics (École polytechnique, MAA204): teaching assistant.

#### Supervised students

Supervision of the Bachelor theses (École polytechnique) of: Martin Ponchon (2020), Anaëlle Touré (2020), Diego Gomez (2021), Makram Loughman (2021), Reine Dayekh (2022), Ahmed Wakrim (2022).

#### Support classes

- 2016-2017 Support classes in mathematics and physics at Institut Villebon-Chapark, Université Paris-Sud.

## Languages

- French** Mother tongue
- English** Full professional working proficiency
- German** Elementary proficiency

## Programming skills

Mainly Python (including Tensorflow for deep learning methods), some notions in C++.