

Research interests

Stochastic control, mean field games, contract theory, backward SDEs, mathematical finance, numerics...

Experience

- 2023-present **Assistant professor (maître de conférences)**, *Université Paris-Cité*, Paris
- 2022-2023 **Postdoctoral researcher**, *ETH Zürich*, Zürich
- 2019-2022 **PhD student and teaching assistant**, *École polytechnique*, Palaiseau
- 2018 **Quantitative analyst intern**, *BNP Paribas*, London, six months off-cycle internship

Academic visits

- Feb. 2024 **ETH Zürich**, *Zürich*, invited by Dylan Possamaï
- Jul. 2023 **University of California, Berkeley**, *Berkeley*, invited by Thibaut Mastrolia
- 2018-2019 **University of Southern California**, *Los Angeles*, one year pre-doctoral research internship, part of my degree at ENS Paris-Saclay, Invited and supervised by Jianfeng Zhang

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

Scientific activities

Preprints

5. Possamaï, D. & Talbi, M. Mean field games of optimal stopping: master equation and weak equilibria. *ArXiv:2307.09278* (2023).
4. Talbi, M. A finite-dimensional approximation for partial differential equations on Wasserstein space. *ArXiv:2211.00719* (2022).

Accepted papers

3. Talbi, M., Touzi, N. & Zhang, J. From finite population optimal stopping to mean field optimal stopping. *Annals of Applied Probability* (to appear).
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* **61**, 2140–2164 (2023).

Talks in international conferences and workshops

- Jan. 2024 23rd annual Society for the Advancement of Economic Theory conference, Santiago, Chile.
- Aug. 2023 10th International Congress on Industrial and Applied Mathematics, Tokyo, Japan.
- 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

- Apr. 2024 Financial mathematics seminar, Princeton University, Princeton, United States.
- Mar. 2024 GT Méthodes stochastiques et finances, Écoles des Ponts, Champs-sur-Marne, France.
- Feb. 2024 Seminar in financial and insurance mathematics, ETH Zürich, Zürich, Switzerland.
- Nov. 2023 Bachelier seminar, Institut Henri Poincaré, Paris, France.
- Oct. 2023 Seminar Mathrisk Inria-LPSM, Inria Paris, Paris, France.
- Jun. 2023 Mathematical finance seminar, Humboldt Universität, Berlin, Germany.
- Mar. 2023 LPSM 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: *Annals of Applied Probability*, *Annales de l'Institut Henri Poincaré*, *Applied Mathematics and Optimization*, *Journal of Optimization Theory and Applications*, *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

- 2023-2024 Mathematical finance (Université Paris-Cité, MSc): teaching assistant
- 2023-2024 Monte Carlo methods for finance (Université Paris-Cité, MSc): teaching assistant
- 2023-2024 Actuarial science (Université Paris-Cité, MSc): teaching assistant
- 2023-2024 Fundamental analysis and algebra (Université Paris-Cité, BSc): teaching assistant
- 2022-2023 Mathematical finance and stochastic calculus (ETH Zürich, MSc): surrogate lecturer.
- 2020-2022 Introduction to Python (École polytechnique, MSc): teaching assistant.
- 2019-2022 Stochastic calculus in finance (École polytechnique, MSc): teaching assistant for Python sessions.
- 2019-2022 Introduction to statistics (École polytechnique, BSc): 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++.