Ziad Kobeissi

Postdoctorate researcher

▬▬▬ Research Interests

Mean Field Games	Machine Learning
Partial Differential Equations	Optimization
Numerical Methods	Reinforcement Learning
Control theory	Stochastic Differential Equations

▬▬▬ Position

2020–Present **Postdoctorate researcher at INRIA Centre Paris (SIERRA team) and Institut Louis Bachelier Paris**, *Scientific supervisors: Francis Bach, Jean-Michel Lasry and Pierre-Louis Lions.*

▬▬▬ Education

2017–2020 **Ph.D thesis at University Paris Diderot, LJLL**, *Under the supervision of Yves Achdou and Pierre Cardaliaguet, Mean Field Games of Controls*, defended on October, 2nd 2020.

2016–2017 **Master 2 in Analysis/PDEs**, *UPMC (Paris-Sorbonne).*

2015–2016 **Master 2 in Probability**, *ENS Lyon.*

2015 **Erasmus exchange at Imperial College of London**.

2013–2014 **Advanced Bachelor in Mathematics**, *ENS Lyon.*

2013–2016 **ENS Lyon**, *Admitted to the examination (Normalien).*

2010–2013 **Classe préparatoire at Champollion and Lycée du Parc**.

▬▬▬ Publications

Published **A Non-asymptotic Analysis of Non-parametric Temporal-Difference Learning**, *with E. Berthier and F. Bach*, 2022, NeurIPS 2022.

Published ***Mean Field Games with monotonous interactions through the law of controls***, *2022*, NoDEA: Nonlinear Differential Equations and Applications.

Published ***On Classical Solutions of the Mean Field Game System of Controls***, *2021*, CPDE: Communications in Partial Differential Equations.

Published ***Mean Field Games of Controls: Finite Difference Approximations***, *with Y. Achdou*, 2020, AIMS: Mathematics in Engineering.

Published ***On the implementation of a primal-dual algorithm for second order time-dependent mean field games with local couplings***, *with L.Briceño-Arias, D. Kalise, M. Laurière, Á.M. González, F.J. Silva*, 2019, ESAIM: ProcS.

Preprint ***On a Variance Reduction Correction of the Temporal Difference for Policy Evaluation in the Stochastic Continuous Setting***, *with F. Bach*, 2022.

Preprint ***Mean field game problems in the management of fisheries I: monostable models in bounded domains***, *with I. Mazari-Fouquet and D. Ruiz-Balet*, 2023.

Preprint   **The tragedy of the commones: a mean field game approach to the reversal of travelling waves**, *with I. Mazari-Fouquet and D. Ruiz-Balet*, 2023.

Talks & Reviewing

Conferences:

13/12/2022	**Mean Field Games and Related Topics, Lagrange Center, Paris**.
13/12/2021	**Mathematical Advances in Mean Field Games, IMSI, Chicago**.
01/12/2021	**PGMO Days, EDF Saclay, Paris**.
18/09/2019	**FGS 2019, conference on optimization, University Nice Sophia Antipolis**.
13/09/2019	**Mean Field Games and Related Topics 5, Levico Terme**.
18/12/2018	**MFG Days 2018, University Paris Diderot**.
20/08/2017	**CEMRACS 2017, CIRM (Marseille)**.

Seminars:

28/03/2019	**Seminar of young researchers at University Paris-Dauphine**.
05/02/2019	**Seminar of Ph.D students of LJLL at University Paris-Sorbonne**.
04/06/2018	**Seminar of Ph.D students of LPSM at University Paris-Sorbonne**.

Reviewing:

2022-Present	**Reviewer**, *Dynamical Games and Applications*.
2021-Present	**Reviewer**, *SIAM Journal on Control and Optimization (SICON)*.
2021-Present	**Reviewer**, *Applied Mathematics and Optimization (AMOP)*.

Teaching

2020	**2nd-year B.Sc. Exercice sessions in Probability**, *Paris Diderot*.
2020	**2nd-year B.Sc. Exercice session in algebra and analysis**, *Paris Diderot*.
2019	**2nd-year B.Sc. Exercice sessions in Probability**, *Paris Diderot*.
2019	**1st-year B.Sc. Exercice sessions in algebra and analysis**, *Paris Diderot*.
2018	**2nd-year B.Sc. Exercice session in algebra and analysis**, *Paris Diderot*.
2017	**1st-year M.Sc. Pratical sessions: algorithmics and introduction to C**, *Paris Diderot*.
2016	**1st-year B.Sc. Exercice sessions in maths for economics-major (ECS)**, *Lycée Carnot*.
2015	**2nd-year B.Sc. Exercice sessions for maths-major (MP*)**, *Lycée du Parc (Lyon)*.

Internships/Research projects

2017	**CEMRACS: 6-week research project on Numerics at CIRM (Marseille)**.
2017	**4-month internship on Mean Field Games of Controls**, *Supervisors: Yves Achdou and Pierre Cardaliaguet*, Paris Diderot.
2016	**3-month internship on Data Assimilation and Optimal transport**, *Supervisor: Youssef Marzouk*, MIT (Boston).
2016	**1-month internship on Data Assimilation and Optimal transport**, *Supervisor: Ibrahim Hoteit*, KAUST (Saudi Arabia).
2015	**3-month internship in Stochastic Modeling**, *Supervisor: Roger Ghanem*, USC (Los Angeles).
2014	**2-month internship in Numerical Simulations on PDEs**, *Supervisor : Carola-Bibiane Schönlieb*, University of Cambridge.

Schools

2021	**Introduction to Mean Field Games and Applications, IMSI, Chicago, USA**.
2021	**Reinforcement Learning Virtual School, ANITI, Toulouse, France**.
2019	**Second Nepal Winter school in AI, at Pokhara, Nepal**.
2019	**High Dimensional Probability and Algorithms, at ENS Paris, France**.
2019	**Summer School on MFG at Cetraro, Italy**.
2018	**Summer School on MFG at IPAM, UCLA, Los Angeles, USA**.
2017	**CEMRACS at CIRM, Marseille, France**.

Skills

| Programming | **C++, C, Python, Matlab, Julia**. |
| Languages | **French: native, English: fluent**. |