Benoît Bonnet

Curriculum Vitae (September 12, 2020)

Research Positions

November **Postdoctoral fellow at the IMJ-PRG under the supervision of H. Frankowska**, *Institut de Mathématiques* 2019 – now *de Jussieu – Paris Rive Gauche*, Paris.

2016 – 2019 PhD student in Applied Mathematics under the supervision of F. Rossi and M. Hauray, Aix-Marseille Université, LIS - Università degli Studi di Padova, Marseille, Padova.

Publications and Conference Proceedings

- 2020 **Necessary Optimality Conditions for Optimal Control Problems in Wasserstein Spaces** (with H. Frankowska), *Journal submission*.
- 2020 **Mean-Field Optimal Control of Continuity Equations and Differential Inclusions** (with H. Frankowska), to appear in the proceedings of the 59th Conference on Decision and Control.
- 2020 **Differential Inclusions in Wasserstein Spaces: The Cauchy Lipschitz Framework** (with H. Frankowska), to appear in Journal of Differential Equations.
- 2020 **Intrinsic Lipschitz Regularity of Mean-Field Optimal Controls** (with F. Rossi), *Currently under revision in SIAM Journal on Control and Optimization*.
- 2020 Consensus and Flocking Under Communication Failures for a Class of Cucker-Smale System (with É. Flayac), *Journal submission*.
- 2019 **Generic Singularities of the 3D-contact Sub-Riemannien Conjugate Locus** (with J.P. Gauthier & F. Rossi), *Comptes Rendus de l'Académie des Sciences, 357 (6)*.
- 2019 A Pontryagin Maximum Principle in the Wasserstein Space for Constrained Optimal Control Problems, *ESAIM COCV 25 (52)*.
- 2019 **The Pontryagin Maximum Principle in the Wasserstein Space** (with F. Rossi), *Calculus of Variations and Partial Differential Equations*, 58:11.
- 2017 **Sparse Control of Kinetic Cooperative Systems to Approximate Alignment** (with F. Rossi), *20th IFAC World Congress Proceedings*.

Presentations at Internationals Conferences, Seminars and Workshops

- May 2020 Flocking for the Cucker-Smale System under Communication Failures, Seminar of the CAGE INRIA team, Université Pierre et Marie Curie, Paris.
- October 2019 Intrinsic Lipschitz Regularity in Mean-Field Optimal Control, Seminar of Probability, Statistics and Control Theory, ENSTA Paris, Palaiseau.
 - June 2019 **Some Problems in Modelling and Optimal Control of Multi-Agent Systems**, *Poster session of the conference "Crowds: models and control"*, Marseille.
- March 2019 **Topics in Analysis and Optimal Control of Multi-Agent Systems**, Seminar of Analysis, Dipartimento di Matematica "Tullio Levi-Civita", Padova.
- February 2019 **Optimal Control of Multi-Agent Systems : A Pontryagin Approach**, Winter School in Calculus of Variations and Probability Theory, Toulouse.
 - July 2018 **Optimal Control Problems in Wasserstein Spaces**, "Variational Analysis and Optimal Control" Invited Session, 14th Viennese Conference on Optimal Control and Dynamic Games, Vienna.
- January 2018 ________ , 12th International Young Researcher Workshop on Geometry, Mechanics and Control, Padova.
 - July 2017 Sparse Alignment of Kinetic Cooperative Systems, IFAC World Conference, Toulouse.

Teaching Activities

2019 – 2021 Exercise sessions for the Master course Continuous Optimisation – Theory and Algorithms, ENSTA Paris & Université Paris-Sud.

- 2019 2020 Exercise sessions for the Bachelor course Quadratic Optimisation, ENSTA Paris.
- 2017 2019 Lectures of the Bachelor course Introduction to Lebesgue Integration, École Centrale Marseille.
- 2017 2019 Lectures of the Bachelor course Introduction to Continuous Optimization, École Centrale Marseille.
- 2017 2018 Exercise sessions for the Master course Introduction to Optimisation Theory, École Centrale Marseille.
 - 2014 Examiner for mathematics oral examination practice (khôlleur), EPF.

Grants

- 2020 2021 1-year-and-a-half postdoctoral fellowship from INRIA, Laboratoire Jacques-Louis Lions.
- 2016 2019 3-year PhD grant from the Archimède French Excellence Laboratory, Aix-Marseille Université.

Degrees

- 2019 PhD degree in Applied Mathematics from Aix-Marseille Université on the topic "Optimal Control in Wasserstein Spaces", Specialisation in Automation and Control Theory.
- 2016 Master degree in Applied Mathematics from Université Paris-Saclay, Specialisation in Optimisation.
- 2016 Master degree in Mathematical Engineering from ENSTA Paris, Specialisation in Control Theory and Optimisation.
- 2011 **A-level validations**, Specialisation in Mathematics.

Education

- 2015 2016 Student of the Optimisation MSc program of the Université Paris-Saclay, Université Paris-Sud, Orsay.
- 2013 2016 Student at the ENSTA Paris Engineering School, ENSTA Paris, Palaiseau.
- 2011 2013 **Student in French "Classe préparatoire aux Grandes Écoles"**, Lycée Blaise-Pascal, Orsay.
- 2008 2011 Highschool student, Lycée Descartes, Antony.

Past Internships and Student Activities

Internships

- April August Research internship on the topic "Stabilization and analysis of stick-slip phenomena in oil-drilling facilities" under the supervision of Assistant Pr. Florent Di Meglio, École des Mines de Paris, Paris.
- May August Research internship on the topic "Passive tracer transport in time-dependent corner flows" under 2015 the supervision of Assistant Pr. Michal Branicki, University of Edinburgh, Edinburgh.
 - Jully 2014 One-month operator placement in the context of the first year curriculum at ENSTA Paris, Horiba Jobin Yvon SAS, Longjumeau.

Student activities

2013 – 2015 Member of the organisation teams of several scientific seminars addressed to visiting European students, *ENSTA Paris*, Palaiseau.

Languages

- French Mother tongue
- English Fluent (TOEIC score 980/990, C2-level CEFR)
- Italian Basics
- Chinese, Small remnants

German

Miscellaneous interests and hobbies

- Playing the drums (10-year regular practice)
- Bouldering (indoor climbing)
- Medieval & Mesopotamian history
- Pool and Snooker billiard (5-year regular practice)
- Video games, modelling, science-fiction & fantasy
- Bodhran (celtic traditional drum) & Guitar
- Bike travels
- Philosophy of theoretical physics and mathematics
- Theatre
- Strategy-based boardgames