

Luis Maximiliano Fredes Carrasco

Curriculum Vitae

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Higher Education and academic professional experience



- Nov.2022-... 🎓 **Maître de conférences (Assistant Professor)** Institut de mathématiques de Bordeaux, University of Bordeaux.
- Sept.2022-Oct.2022 🎓 **Postdoc** Institut de mathématiques de Bordeaux, University of Bordeaux.
- Oct.2019-Oct.2021 🎓 **Postdoc** ERC GeoBrown, University Paris-Sud Orsay.
Supervisor: Jean François Le Gall.
- Sept.2016-Sept.2019 🎓 **Ph.D in mathematics:** *Some models at the interface of probability and combinatorics : particle systems and maps.*, University of Bordeaux.
Advisor: Jean François Marckert.
- Sept.2015-Dec.2016 🎓 **MSc** Master class in planar statistical physics, one year plan, University of Geneva.
- March 2014-April 2015 🎓 Mathematical engineering thesis and master thesis in Operations research, University of Chile.
Advisor: Daniel Remenik.
- 2014 -2015 🎓 **MSc** Master in Operation research, two years plan, University of Chile.
- 2008 -2013 🎓 **Bachelor** in Engineer sciences, mention in Mathematics, University of Chile.
- Summer 2013 Two summer courses, probability and Markov chains, IMPA, Rio de Janeiro, Brazil.
- 2002 - 2007 🎓 **High school** Instituto Nacional José Miguel Carrera.

Other professional experiences


- Research engineer** Nucleo Milenio Stochastic models of complex and disordered systems.
April 2015-Aug. 2015
- 3rd. Internship** - 2014 Mine planning laboratory, University Adolfo Ibañez.
Topic: Programming a model of stochastic optimization to plan the ore extraction.
- 2nd. Internship** - 2012 Advanced Research Center in Education (CIAE), University of Chile..
Topic: Study of children's behavior in the classroom with data from facial recognition software.
- 1st. Internship** - 2012 Advanced Research Center in Education (CIAE), University of Chile.
Topic: Adaptation of a facial recognition software.
- Academic Staff** - Mathematical Olympiads Tournament "CMAT" organized by University of Santiago
2008-2011 **Professor in charge:** Rafael Labarca.

Published articles:

- 2023 📄 Almost triangular Markov chains on N . With J. F. Marckert, 40 pages. To appear in Electronic Journal of Probability. [Arxiv: 2109.06549](https://arxiv.org/abs/2109.06549).
- 2023 📄 Models of random subtrees of a graph. With J. F. Marckert, 52 pages. To appear in Probability surveys. [Arxiv: 2102.12738](https://arxiv.org/abs/2102.12738).
- 2021 📄 Aldous-Broder theorem: extension to the non reversible case and new combinatorial proof. With J. F. Marckert, 18 pages. Random Structures and Algorithms. [Article in RSA](#).
- 2019 📄 Tree decorated maps. With A. Sepúlveda, 28 pages. [Electronic Journal of combinatorics](https://arxiv.org/abs/1905.08881).

- 2018  Coexistence for a population model with forest fires epidemics. To appear in Annals of applied probabilities. Avec A. Linker et D. Remenik, 31 pages. [Arxiv: 1811.12468](#).
- 2017  Invariant measures of discrete interacting particle systems: Algebraic aspects. With J. F. Marckert, 55 pages. [ESAIM: Probability and Statistics](#)

Submitted:

- 2021  Non-bijective scaling limit of maps via restriction. With J. Bettinelli, N. Curien et A. Sepúlveda, 19 pages. Submitted 05/21. [Arxiv: 2104.12716](#).

Talks:

- 2017 Universidad de Chile, Nucleo milenio stochastic models of complex and disorder systems.
- 2018 LaBRI, Université de Bordeaux, seminar in combinatorics.
- 2018 St. Flour, 48th summer school in probability.
- 2019 Université Paris-Sud Orsay, Probability group seminar.
- 2019 JCB 2019, Université de Bordeaux, LaBRI.
- 2019 École polytechnique, Plateau Saclay Combinatorics Seminar.
- 2019 ALEA marseille, CIRM.
- 2019 Journée Cartes, Université Paris 13.
- 2019 Random Trees and Graphs Summer School, CIRM.
- 2019 Enumerative and analytic combinatorics seminar, IRIF.
- 2020 Nucleo milenio Stochastic models of complex and disorder systems, Universidad de Chile.
- 2020 Math departament seminar, USACH.
- 2021 Journées cartes, CIRM.
- 2021 Chilean probability seminar, Universidad de Chile.
- 2022 Chilean probability seminar, Universidad de Chile.
- 2022 Seminar IOP group, University of Bordeaux.
- 2023 Thematic days MARGAUX: Probability and statistics.

Poster sessions:

- 2015 CLAPEM, Cartagena de Indias, Colombia.
- 2018 EDMI day, Université de Bordeaux.
- 2019 EDMI day, Université de Bordeaux.

Conferences, workshops and schools

- 2014, December Information and randomness, Puerto Varas, Chile.
- 2014, September XIII Clapem, Cartagena de Indias, Colombia.
- 2015, July ICMP 2015, Santiago, Chile.
- 2016, February Workshop on statistical mechanics, Les Diablerets, Switzerland.
- 2017, January LaBRI: Journées de combinatoire de Bordeaux, Bordeaux, France.
- 2017, March CIRM: Journées Aléa, Luminy, France.
- 2017, June Statistical Mechanics, random planar geometry and interacting random walks, Lyon, France.
- 2017, June BGSMath Random Discrete Structures and Beyond, Barcelona, Spain.
- 2017, October ALEA in Europe Workshop, Vienna, Austria.
- 2018, February LaBRI: Journées de combinatoire de Bordeaux, Bordeaux, France.
- 2018, March CIRM: Journées Aléa, Luminy, France.
- 2018, May Eurandom: Franco-Dutch YEP Workshop, Eindhoven, The Netherlands.

- 2018, July 48th Probability Summer School Saint-Flour, Saint-Flour, France.
- 2018, December Random physical systems, Patagonia 2018, Puerto Natales, Chile.
- 2019, February LaBRI: Journées de combinatoire de Bordeaux, Bordeaux, France.
- 2019, March CIRM: Journées Aléa, Luminy, France.
- 2019, April CIRM: Journée cartes, Paris, France.
- 2019, May Random maps and matrices from a geometric perspective, Lyon, France.
- 2019, June Walking through the Brownian zoo, Paris, France.
- 2019, July Random Trees and Graphs Summer School, Luminy, France.
- 2023, February LaBRI: Journées de combinatoire de Bordeaux, Bordeaux, France.

Research visits

- 2016, November NYU Shanghai, China.
- 2016, December DIM, Santiago, Chile.
- 2017, December DIM, Santiago, Chile.
- 2018, October Université Lyon 1, Lyon, France
- 2018, November DIM, Santiago, Chile.
- 2019, March École polytechnique, France.
- 2022, September DIM, Santiago, Chile.

Teaching experience

- 2023 Instructor: **Markov Chain Monte Carlo (Master)**, University of Bordeaux
- 2023 Instructor: **Projet TER (Master)**: Projet d'expertise en Statistique et Probabilités, University of Bordeaux
- 2022 Instructor: **Probability and statistics (Master)**, University of Bordeaux.
- 2022 Instructor: **Introduction to deep learning (Master)**, University of Bordeaux.
- 2017 Instructor: **Introduction to informatics (Bachelor)**, University of Bordeaux.
- 2018 Instructor: **Coloration Informatics (Bachelor)**, University of Bordeaux.
- 2010-2014,2018,2019 As teaching assistant in semester courses:
 - Advanced Calculus.
 - Probability.
 - Markov Processes.
 - Probability and statistics.
 - Stochastic models applied to engineering.
 - Models and algorithms for optimization.
 - Computational Statistic.
 - Stochastic simulation: theory and laboratory.

Languages skills

- English Advanced.
- French Advanced.
- Spanish Native.

Computational Skills

- Programing languages Java, C/C++ , Python.
- Mathematical software MATLAB, Mathematica, Maple.