

NICOLÁS ZALDUENDO VIDAL

Postdoctoral Researcher at UMR Mistea - INRAE Occitanie-Montpellier
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HIGHER EDUCATION

- PhD in Applied Mathematics,** *Oct 2020 - Dec 2023*
Université de Lorraine and Inria Grand Est, Nancy, France.
Subject: The multi-type bisexual Galton-Watson branching process.
Supervisors: C. Fritsch and D. Villemonais.
My manuscript is [here](#)
- Master M2 “Mathématiques de l’Aléatoire”,** *Sept 2019 - Sept 2020*
Université Paris-Saclay, Orsay, France.
Internship supervisors: C. Fritsch, D. Villemonais (France) and E. Horton (England).
My manuscript is [here](#).
- Master of Engineering Sciences in Applied Mathematics,** *March 2018 - January 2019*
Universidad de Chile, Santiago, Chile.
Supervisor: D. Remenik.
Graduated with highest honours. My manuscript in Spanish is [here](#)
- Mathematical Engineering,** *March 2012 - Dec 2017*
Universidad de Chile, Santiago, Chile.
Graduated with highest honours.
- Bachelor of Engineering Sciences, Mention Mathematics,** *March 2012 - Dec 2015*
Universidad de Chile, Santiago, Chile.

PROFESSIONAL EXPERIENCE

- Postdoctoral Position.** *UMR Mistea, Inrae Occitanie-Montpellier.* *January 2024 - Today*
Description: Limit theorems for infinite dimensional branching processes.
Supervisor: Bertrand Cloez.
- Assistant to Academic Management Direction.** *Universidad de O’ Higgins.* *March - July 2019*
Description: In charge of assisting the academic management director in the coordination of all the courses in the university, through the web platform *UCampus.cl*.
- Center for Advance Research on Education.** *Universidad de Chile.* *Oct - Nov 2018*
Description: In charge of develop mathematical problems for an intervention to high school teachers in the context of the ARPA program.
- Assistant to Executive Teaching Director.** *Universidad de Chile.* *July 2015 - April 2017*
Description: In charge of coordinate the supervision, correction and reclamation of the tests and exams on all the mathematical courses of the first two years in the Faculty of Physical and Mathematical Sciences.

PUBLICATIONS AND WORKS IN PROGRESS

Journal Publications:

- The Multi-type bisexual Galton-Watson branching process.**
with C. Fritsch and D. Villemonais (in Ann. Inst. H. Poincaré Probab. Statist. 60(4)). [Arxiv](#). [Journal](#).
- Restricted maximum of non-intersecting Brownian bridges.**
with Y. Yalanda (in ESAIM: PS 28 (2024) 258273). [Arxiv](#). [Journal](#).

Preprints:

-Quasi-limiting behaviour of the sub-critical bisexual Galton-Watson branching process.
with C. Fritsch and D. Villemonais. [Arxiv](#).

Works in Progress:

-Central limit theorems for structured branching processes.
with B. Cloez.

-A continuous time two-sex population model.
with E. Horton

-Product of random transition kernels and weighted branching processes.
with C. Fritsch and D. Villemonais

CONFERENCES ORGANIZATION

Conference on Non-Local Branching Processes. CIRM Luminy, France. *September 2024.*
Organization of a conference for 70 participants.

21st INFORMS Applied Probability Society Conference. Nancy, France. *June 2023.*
Organization of a conference for 450 participants.

SUPERVISIONS

Project 3A (M2) École des Mines de Nancy. Hassan Berrada. *Sept 2022 - Feb 2023*
Subject: Study and simulation of a continuous time bisexual birth and death process. Co-supervised
with C. Fritsch.

TEACHING EXPERIENCE

École des Mines de Nancy: as *Chargé de TD (20 hrs each)* in the courses:

-Probabilités I. *Sept - Dec 2023*
-Probabilités I. *Sept - Dec 2022*
-Analyse Numérique. *Sept - Dec 2022*
-Probabilités I. *Sept - Dec 2021*
-Analyse Numérique. *Sept - Dec 2021*
-Probabilités II. *Sept - Dec 2020*

Universidad de Chile: (this course was taught online)

Lecturer (45 hrs), Introduction to Algebra. *March - June 2021*

Universidad de O'higgins

Lecturer (45h), Mathematics for Public Administration. *March - June 2019*

Universidad Técnica Federico Santa María

Lecturer (45 hrs), Statistics. *March - June 2019*

Universidad de Chile: Summer School for High School students.

Lecturer (40 hrs), Basics of Linear Algebra. *January 2019*

Universidad Andrés Bello

Lecturer (45 hrs), Probabilities and Statistics. *June - Dec 2018*

Universidad Santo Tomás

Assistant Professor (20 hrs), Linear Algebra. *March 2017 - June 2017*

Universidad de Chile: as *Assist. Professor (30 hrs each)* in the courses: *March 2014 - June 2019*

-Stochastic Calculus (*2 times*).

-Abstract Algebra (*1 time*).

-Markov Processes (*2 times*).

-Probabilities (*2 times*).

-Probabilities and Statistics (*3 times*).

-Linear Algebra (*9 times*).

- Advanced Calculus and Applications (*1 time*).
- Introduction to Algebra (*2 times*).
- Multivariable Calculus (*1 time*).
- Differential and Integrable Calculus (*2 times*).
- Introduction to Calculus (*1 time*).

PREVIOUS AND UPCOMING TALKS

Besançon Meeting on Probability, Ecology & Evolution. <i>Invited Speaker.</i> Besançon, France.	<i>December 2024</i>
Discrete Randomness Conference. <i>Invited Speaker.</i> Créteil, France.	<i>December 2023</i>
Workshop L^2 in Probability and Statistics. <i>Invited Speaker.</i> Metz, France.	<i>September 2023</i>
21st INFORMS Applied Probability Society Conference. Nancy, France.	<i>June 2023</i>
Mathematical Models in Ecology and Evolution. Reading University, England.	<i>July 2022</i>
Journées de Probabilités. Orbey, France.	<i>June 2022</i>
Etheridge Group Seminar. Oxford University, England.	<i>July 2021</i>
École de Recherche de la Chaire MMB. Aussois, France.	<i>June 2021</i>

DISTINCTIONS

Master Scholarship. <i>Sophie Germain Excellence Student Scholarship.</i> Fondation Mahtématique Jacques Hadamard, Paris, France.	<i>Sept 2019 - Aug 2020</i>
Graduated with the highest honours. Master of Engineering Sciences in Applied Mathematics.	<i>January 2019</i>
Graduated with the highest honours. Mathematical Engineering.	<i>January 2019</i>
Outstanding Student Award. Faculty of Physical and Mathematical Sciences. Santiago, Chile.	<i>December 2017</i>
Outstanding Student Award. Faculty of Physical and Mathematical Sciences. Santiago, Chile.	<i>December 2012</i>

EXTRACURRICULAR ACTIVITIES

Member of the Unit Council, MISTEA, INRAE Montpellier. <i>Charge:</i> Postdoctoral Representative.	<i>Oct 2024 - Today</i>
Member of the faculty council. <i>Charge:</i> Undergraduate Representative.	<i>Dec 2017 - Dec 2018</i>
Member of the faculty students centre directive board. <i>Charge:</i> Teaching Representative.	<i>March - Dec 2017</i>
Member of the mathematical engineering students centre. <i>Charge:</i> Teaching Representative.	<i>March 2016 - March 2017</i>

LANGUAGE SKILLS

English.	<i>Advanced</i>
French.	<i>Advanced</i>
Spanish.	<i>Native</i>