Ruben Chenevat

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Québec, Canada · February 2026

Current position

Postdoctoral Researcher — **École d'Actuariat, Université Laval**
Québec, Canada
Feb 2026–Sep 2026

Stochastic optimal control of jump and constrained systems with applications to biology and insurance

Professional experience

Research Engineer — **G-EAU, INRAE**
Montpellier, France
Nov 2025–Jan 2026

Engineer in development and analysis of an irrigation model, optimization in an agrivoltaic context

Education

PhD in Mathematics and Modeling — **Université de Montpellier**, **MISTEA, INRAE**
Montpellier, France
Oct 2022–Oct 2025

"Optimal control of irrigation: double mathematical and agronomic modeling towards an application to the Optirrig model"
Supervisors: Alain Rapaport, Bruno Cheviron, Sébastien Roux

Master's degree in Mathematics — **Université Paris-Saclay**
Gif-sur-Yvette, France
Sep 2021–Aug 2022

Analysis, Modeling, Simulation

Normalien student in Mathematics — **École Normale Supérieure de Rennes**
Rennes, France
Sep 2018–Aug 2022

Civil servant trainee status
Agrégation de Mathématiques (session 2021)

Preparatory Classes for Grandes Écoles — **CPGE Lycée Descartes**
Tours, France
Sep 2015–July 2018

Mathematics and Physics, MPSI–MP*

Research internships and visits

Visit – Optimal control problems with state constraints for crop irrigation — SYSTEC, FEUP
Porto, Portugal
Jan 2025–April 2025

Collaborator: Maria do Rosário de Pinho

Internship – Unicity and minimality of vortex solutions in variational models — IMT, Université Paul Sabatier
Toulouse, France
April 2022–Aug 2022

Supervisor: Radu Ignat

Internship – Mathematical problems in the analysis of the stability and the structure of matter — QMATH, University of Copenhagen
Copenhagen, Denmark
May 2019–July 2019

Supervisor: Jan-Philip Solovej

Publications

Journal Articles

[A2] About the Bang-Bang principle for controlled affine dynamics with Brownian noise.
Ruben Chenevat, Dan Goreac, Qinlong Li, Alain Rapaport.
Journal of Convex Analysis, accepted for publication (2026).

[A1] Optimal structures of crop irrigation strategies with state constraints.
Ruben Chenevat, Bruno Cheviron, Sébastien Roux, Alain Rapaport.
Journal of Optimization Theory and Applications, 208, 18 (2026). DOI: 10.1007/s10957-025-02854-7

Conference Papers

[C3] Common structures of optimal solutions for a crop irrigation problem under various constraints and criteria.
Ruben Chenevat, Bruno Cheviron, Sébastien Roux and Alain Rapaport.
63rd IEEE Conference on Decision and Control (CDC), Milan, Italy, 2024. DOI: 10.1109/CDC56724.2024.10886226

[C2] About the Bang-Bang principle for piecewise affine systems.
Ruben Chenevat, Bruno Cheviron, Sébastien Roux and Alain Rapaport.
63rd IEEE Conference on Decision and Control (CDC), Milan, Italy, 2024. DOI: 10.1109/CDC56724.2024.10886617

[C1] The Optirrig model for the generation, analysis and optimization of irrigation scenarios: rationale and scopes.
B. Cheviron, M. Lo, J. Catel, M. Delmas, Y. Elamri, K. Akakpo, I.-A. Ramos-Fuentes, J.-D. Dominguez-Bohorquez, M. Garcia de Cezar, Y. Razavi-Ebrahimi, A. Degenne, R. Chenevat, J.C. Mailhol.
XXXI International Horticultural Congress (IHC2022), Angers, France, 2022. DOI: 10.17660/ActaHortic.2023.1373.5

Preprints and Submitted papers

- Extremal stochastic controls for affine jump systems with applications to two-line insurance models.
Hezhen Bao, Ruben Chenevat, Dan Goreac, Juan Li.
(submitted, Feb 2026).

Talks in international conferences

"Optimizing crop irrigation under biological and operational constraints with meteorological uncertainty"
EUROGEN 2025, Lahti, Finland, Sep 2025.

"Common structures of optimal solutions for a crop irrigation problem under various constraints and criteria"
CDC 2024, Milan, Italy, Dec 2024.

"About the Bang-Bang principle for piecewise affine systems"
CDC 2024, Milan, Italy, Dec 2024.

"About the Bang-Bang principle in a non-smooth setting"
FGS 2024, Gijon, Spain, June 2024.

Poster: "Optimal structures for a model of crop irrigation with constraints"
SMAI-MODE 2024, Lyon, France, March 2024.

Teaching

Tutorials – Logic and set theory — Université de Montpellier
First-year undergraduate level — Fall 2023

Lab sessions – Numerical analysis of ODEs and PDEs — Université de Montpellier
Third-year undergraduate level — Spring 2023

Tutorials – Analysis I: Functions of one variable and sequences — Université de Montpellier
First-year undergraduate level — Fall 2022 & 2023

Tutorials – Calculus — Université de Montpellier
First-year undergraduate level — Fall 2022 & 2023

Grants

Hubert Curien partnership France-Portugal (Program PHC-PESSOA 2025-2027)
Project: "OITE: Optimizing Irrigation efficiency under Technical and Environmental constraints"

Scientific activities

Project "BOUM" SMAI 2025
Funding for the organization of a workshop day on Optimization, Modelling and Control (held on June 12, 2025)
Co-organized with Anas Bouali and Gildas Dadjo

Working group (April 2023–July 2025)
"Optimal Control & Pontryagin Maximum Principle"

Academic service

Reviewer for:

IFAC World Congress 2026

Awards and scholarships

PhD label: International research school of Agreenium (EIR-A 2024)

PhD label: Digital agriculture convergence lab (#DigitAg 2023)

Skills

Languages: French (native), English (academic level), German (notions), Portuguese (notions)
Programming: Python, R, Julia, MATLAB
Optimization software: BOCOP, Control Toolbox
Typesetting: LaTeX
