

# Ruben Chenevat

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Québec, Canada · May 2026

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## CURRENT POSITION

### Postdoctoral Researcher

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

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

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## PROFESSIONAL EXPERIENCE

### Research Engineer

Modelling and optimal control of irrigation and shading systems in an agrivoltaic context

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

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## EDUCATION

### PhD in Mathematics and Modelling

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

**Université de Montpellier**  
**MISTEA, INRAE**  
Montpellier, France  
Oct 2022–Oct 2025

### Master's degree in Mathematics

Analysis, Modelling, Simulation

**Université Paris-Saclay**  
Gif-sur-Yvette, France  
Sep 2021–Aug 2022

### Normalien student in Mathematics

Civil servant trainee status  
Agrégation de Mathématiques (session 2021)

**École Normale Supérieure de Rennes**  
Rennes, France  
Sep 2018–Aug 2022

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## RESEARCH INTERNSHIPS AND VISITS

Visit – Optimal control problems with state constraints for crop irrigation

Collaborator: Maria do Rosário de Pinho

**SYSTEC, FEUP**  
Porto, Portugal  
Jan 2025–April 2025

Internship – Unicity and minimality of vortex solutions in variational models

Supervisor: Radu Ignat

**IMT, Université Paul Sabatier**  
Toulouse, France  
April 2022–Aug 2022

Internship – Mathematical problems in the analysis of the stability and the structure of matter

Supervisor: Jan-Philip Solovej

**QMATH, University of Copenhagen**  
Copenhagen, Denmark  
May 2019–July 2019

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## 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] Extremal stochastic controls for affine jump systems with applications to two-line insurance models.  
Hezhen Bao, Ruben Chenevat, Dan Goreac, Juan Li.  
15th Asian Control Conference (ASCC), Bali, Indonesia, 2026.
- [C2] 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
- [C1] 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

## Preprints and Submitted Papers

- Extension of the bang-bang principle for piecewise affine dynamics under state constraints.  
Ruben Chenevat, Bruno Cheviron, Sébastien Roux, Alain Rapaport.  
(Submitted, April 2026).

## Manuscripts in preparation

- Exploring the optimality of threshold-based crop irrigation feedback strategies.  
Ruben Chenevat, Bruno Cheviron, Alain Rapaport, Sébastien Roux.

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## 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.

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## TEACHING

### Tutorials – Logic and set theory

First-year undergraduate level

Université de Montpellier  
Fall 2023

### Lab sessions – Numerical analysis of ODEs and PDEs

Third-year undergraduate level

Université de Montpellier  
Spring 2023

### Tutorials – Analysis I: Functions of one variable and sequences

First-year undergraduate level

Université de Montpellier  
Fall 2022 & 2023

### Tutorials – Calculus

First-year undergraduate level

Université de Montpellier  
Fall 2022 & 2023

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## GRANTS

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

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## SCIENTIFIC ACTIVITIES

Project “BOUM” SMAI 2025

Funding for the organization of a workshop day on Optimisation, Modelling and Control (held on June 12, 2025)  
Co-organized with Anas Bouali and Gildas Dadjó

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

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## ACADEMIC SERVICE

Reviewer for:

IFAC World Congress 2026

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## AWARDS AND SCHOLARSHIPS

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

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

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## SKILLS

**Languages:** French (native), English (fluent), German (basic), Portuguese (basic)

**Programming:** Python, Julia, R, MATLAB

**Optimisation software:** BOCOP, Control Toolbox

**Typesetting:** LaTeX

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