

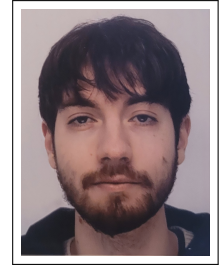
# OLIVIER BOUËT-WILLAUMEZ

PhD Student ~ Computer Science

 [GitHub]

 [WebSite]

 [E-mail]



## RESEARCH INTERESTS

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My research focuses on the modeling and analysis of dynamical systems described by Ordinary Differential Equations (ODEs). To overcome the high dimensionality and computational cost of these continuous models, I make use of discrete probabilistic approximations, more specifically Dynamic Bayesian Networks (DBNs). My work explores model reduction techniques, global sensitivity analysis, and deterministic sampling (such as Quasi-Monte Carlo sequences) to reduce computational costs while ensuring accurate structural and probabilistic approximations.

## EDUCATION

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- 2024 - ... **PhD - Computer Science / Université Paris-Est Créteil**  
Under the supervision of *Nihal Pekergin*, *Adrien Le Coënt* and *Benoît Barbot*, in the Laboratory of Algorithms, Complexity, and Logic (LACL). Title: Machine Learning of Continuous Systems Based on Probabilistic Approximations.
- 2022 - 2024 **Master's Degree - Mathematics, Modeling and Statistical Learning / Université Paris Cité**  
Specialization: Modeling, Analysis, and Simulation. Graduated with High Honors.
- 2020 - 2022 **Bachelor's Degree - Fundamental and Applied Mathematics / Université Paris Cité**  
Graduated with Honors.
- 2019 - 2020 **Double Bachelor's Degree - Mathematics and Computer Science / Université Paris Cité**  
Completed first year with Honors.

## TEACHING

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- 2025-2026 **Website Design / Université Paris-Est Créteil**  
First year of Computer Science Bachelor's Degree, 1st semester, 32h.
- 2025-2026 **Coding, Compression & Cryptography / Université Paris-Est Créteil**  
Second year of Computer Science Bachelor's Degree, 2nd semester, 16h.
- 2025-2026 **Introduction to Complexity & Algorithms / Université Paris-Est Créteil**  
Third year of Computer Science Bachelor's Degree, 2nd semester, 16h.

## PUBLICATIONS

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- 2026 **Conference - ECMS 2026 / Grimstad, Norway** [Paper]  
A Sensitivity-Driven Sampling Reduction Method For Probabilistic Approximations of ODEs, O. Bouët-Willaumez, A. Le Coënt, B. Barbot, N. Pekergin, *International Conference on Modelling and Simulation (ECMS), 2026*.

- 2026 **Conference - ROADEF 2026 / Tours, France** [\[Paper\]](#)  
Sampling Methods for Probabilistic Approximations of ODEs, O. Bouët-Willaumez, A. Le Coënt, B. Barbot, N. Pekergin, *French Society of Operations Research and Decision Support (ROADEF), 2026.*
- 2025 **Conference - QEST + FORMATS 2025 / Aarhus, Denmark** [\[Paper\]](#)  
Conservation Analysis and Discrete Probabilistic Approximations for Parameter Estimation of Biochemical Networks, O. Bouët-Willaumez, A. Le Coënt, B. Barbot, N. Pekergin, *Quantitative Evaluation of SysTems + Formal Modeling and Analysis of Timed Systems (QEST+FORMATS), 2025.*

## EXPERIENCE

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- 02 - 08/2024 **Research Engineer – Internship / Dassault Systèmes**  
Research project on Deep Gaussian Processes for multi-fidelity simulation, with applications in thermal systems. Tasks included literature review, model development, experimentation, and results presentation via technical reports and seminars in the company's Research Division.
- 06 - 10/2023 **Administrative Assistant – University Contact Center / Université Paris Cité**  
Assisted students with administrative procedures (enrollment, applications, diploma requests) through a contact center (phone and email support).

## PROJECTS

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- 2026 **ode2dbn-sensitivity** [\[Source Code\]](#)  
A Python sensitivity-guided framework for constructing reduced Dynamic Bayesian Networks from ODE models with efficient sampling of key dynamical dependencies.
- 2025 **NebulaNet** [\[Source Code\]](#)  
Python library for generating abstract SVG backgrounds using random point placement and proximity-based connectivity to produce constellation-like graph structures.
- 2025 **BayeSBML** [\[Source Code\]](#)  
Python library for conservation analysis and discrete probabilistic approximations to estimate parameters in biochemical networks.

## SKILLS

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### Programming Languages

Python, Julia, R, MATLAB, JavaScript.

### Tools

Git, Docker, Bash, GitLab CI, L<sup>A</sup>T<sub>E</sub>X, (HTML, CSS, Bootstrap).

## LANGUAGES

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**French** – Native, **English** – Fluent, **Spanish** – Basics.