# Julien Martinelli

*PhD graduate*

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Born 05/26/1994


## Academic background

March 2024 - **Postdoctoral Researcher**, Inria SISTM team, Bordeaux Population Health

Feb. 2022 - Feb. 2024 **Postdoctoral Researcher**, Aalto University, Probabilistic Machine Learning team, Helsinki
Supervised by Samuel Kaski, Markus Heinonen and Vikas Garg

Oct. 2018 - Feb. 2022 **PhD in Computer Science**, *On learning mechanistic models from time series data with applications to personalised chronotherapies*, Inria Saclay, Institut Curie Saint-Cloud, École polytechnique
Supervised by François Fages and Annabelle Ballesta

Apr.-Sept. 2018 **Summer Intern**, *Learning mechanistic models from time series data*, Inria Saclay, Lifeware Team
Supervised by François Fages

2017 – 2018 **Masters in Random Modelling, Finance and Data Science, M2MO**, *Data Science track*, Université de Paris

May-July 2017 **Summer Intern**, *Random matrix theory, Application to community detection within networks*, Laboratoire MAP5, Université de Paris
Supervised by Manon Defosseux

2016 – 2017 **First year of Masters in Applied Mathematics**, Université de Paris
ranked $1^{st}$

2012 – 2015 **BSc. Mathematics**, Université de Paris

## Publications

### Publications

2022 **Accelerating metabolic models evaluation with statistical metamodels: application to Salmonella infection models**, *Clémence Frioux, Sylvie Huet, Simon Labarthe, Julien Martinelli, Thibault Malou, David Sherman, Marie-Luce Taupin, Pablo Ugalde-Salas, ESAIM Proceedings & Surveys*

2021 **A mathematical model of the circadian clock and drug pharmacology to optimize irinotecan administration timing in colorectal cancer**, *Janina Hesse, Julien Martinelli, Ouda Aboumanify, Annabelle Ballesta and Angela Relógio, Computational and Structural Biotechnology*

2021 **Model learning to identify systemic regulators of the peripheral circadian clock**, *Julien Martinelli, Xiao-Mei Li, Sandrine Dulong, Sylvain Soliman, Francis Lévi, François Fages and Annabelle Ballesta, Bioinformatics*

### Proceedings

2024 **Bayesian Active Learning in the Presence of Nuisance Parameters**, *Sabina J. Sloman, Ayush Bharti, Julien Martinelli and Samuel Kaski, Proceedings of The 40th International Conference on Uncertainty in Artificial Intelligence* **(oral)**

2024 **Learning relevant contextual variables within Bayesian optimization**, *Julien Martinelli, Ayush Bharti, Armi Tiihonen, S.T. John, Louis Filstroff, Sabina J. Sloman, Patrick Rinke and Samuel Kaski, Proceedings of The 40th International Conference on Uncertainty in Artificial Intelligence*

2023 **Multi-Fidelity Bayesian Optimization with Unreliable Information Sources**, *Petrus Mikkola, Julien Martinelli, Louis Filstroff and Samuel Kaski*, *Proceedings of The 26th International Conference on Artificial Intelligence and Statistics*, 7425-7454

2019 **On Inferring Reactions from Data Time Series by a Statistical Greedy Heuristics**, *Julien Martinelli, Jeremy Grignard, Sylvain Soliman and François Fages*, Proceedings of *the Seventeeth International Conference on Computational Methods in Systems Biology*, 352-355

### Workshop Communications

2024 **Challenges in interpretability of additive models**, *Xinyu Zhang, Julien Martinelli and S.T. John*, *IJCAI 2024 Workshop on Explainable Artificial Intelligence (XAI)*

2023 **Preferential Heteroscedastic Bayesian Optimization with Informative Noise Priors**, *Marshal Sinaga, Julien Martinelli and Samuel Kaski*, *NeurIPS 2023 Workshop on Adaptive Experimental Design and Active Learning in the Real World*

2023 **Learning relevant contextual variables within Bayesian optimization**, *Julien Martinelli, Ayush Bharti, Armi Tiihonen, Louis Filstroff, S.T. John, Sabina J. Sloman, Patrick Rinke and Samuel Kaski*, *NeurIPS 2023 Workshop on Adaptive Experimental Design and Active Learning in the Real World*

2023 **Leveraging expert feedback to align proxy and ground truth rewards in goal-oriented molecular generation**, *Julien Martinelli, Yasmine Nahal, Duong Lê, Ola Engkvist and Samuel Kaski*, *NeurIPS 2023 Workshop on New Frontiers of AI for Drug Discovery and Development*

2019 **A statistical unsupervised learning algorithm for inferring reaction networks from time series data**, *Julien Martinelli, Jeremy Grignard, Sylvain Soliman and François Fages*, *ICML 2019-Workshop on Computational Biology*

### Preprints

2024 **Human-in-the-loop active learning for goal-oriented molecule generation**, *Yasmine Nahal, Janosch Menke, Julien Martinelli, Markus Heinonen, Mikhail Kabeshov, Jon Paul Janet, Eva Nittinger, Ola Engkvist ans Samuel Kaski*, under review

2024 **Heteroscedastic Preferential Bayesian Optimization with Informative Noise Distributions**, *Marshal Sinaga, Julien Martinelli, Vikas Garg and Samuel Kaski*, under review

2022 **Reactmine: a search algorithm for inferring chemical reaction networks from time series data**, *Julien Martinelli, Jeremy Grignard, Sylvain Soliman, Annabelle Ballesta and François Fages*

## Oral Communications

### Invited Talks

February 2023 **Biostatistics Seminar**, *Bordeaux Population Health Center*

January 2023 **Public Seminar - CRiStAL team**, *Université de Lille*

November 2022 **AI Day**, *Helsinki*

July 2022 **Workshop on Hybrid models and methods in systems medicine**, *Institut Curie, Paris*

### Talks

July 2024 **European Conference on Mathematical and Theoretical Biology**, *Toledo*

June 2024 **Journées Maths-Bio-Santé**, *Nantes*

May 2024 **Public Seminar**, *TU Hamburg*

May 2024 **Monthly seminar BIOSS-IA**, *Remote*

November 2023 **Public Seminar - SISTM team**, *Bordeaux Population Health Center*

May 2023 **Machine Learning Coffee Seminar**, *Helsinki*

August 2022 **Finnish Center for Artificial Intelligence - Get together**, *Helsinki*

August 2021 **CEMRACS - Data Assimilation and Reduced Modeling for High Dimensional Problems**, *Luminy*

July 2021 **Twentieth European Conference on Computational Biology**, *Remote*

June 2021 **Tenth biennial of the Society of Applied and Industrial Mathematics (SMAI)**, *La Grande Motte*

May 2021 **Workshop Modelling Heterogeneous populations with applications in biology**, *Remote*

April 2021 **Monthly seminar BIOSS-IA**, *Remote*

May 2019 **BIOSS-IA Days**, *Laboratoire d'Informatique Fondamentale d'Orléans*

December 2018 **BIOSS-IA Days**, *Pasteur Institute, Paris*

### Poster Sessions

July 2024 **UAI 2024**, *Barcelona*

December 2023 **NeurIPS 2023 Workshops**, *New Orleans*

September 2023 **ELLIS Robust ML Workshop**, *Helsinki*

April 2023 **AISTATS 2023**, *València*

July 2021 **JOBIM 2021**, *Remote*

January 2021 **Winter school AI4Health**, *Remote*

June 2019 **Summer School Formal Modeling of Biological Regulatory Networks**, *Porquerolles*

## Teaching

2022 – 2023 **Teaching Assistant**, *MSc.*, Machine Learning: Advanced Probabilistic Methods, Aalto University

2019 – 2021 **Teaching Assistant**, *2nd year BSc.*, Analysis 4, Multivariate functions, Université de Paris

2018 – 2019 **Teaching Assistant**, *1st year BSc.*, Mathematics and Calculus 2, Université de Paris

## Supervision and Advising

February 2024 - August 2024 **Xinyu Zhang**, *Master Thesis*, 2nd year MSc. student, Amortized Bayesian Optimization
Joint supervision with Daolang Huang

September 2023 – January 2024 **Xinyu Zhang**, *Research Assistant*, 2nd year MSc. student, Probabilistic Neural Additive Models for Interpretable Machine Learning
Joint supervision with S.T. John

June 2023 – **Marshal Sinaga**, *PhD Student*, Bayesian Experimental Design
Advisor (Supervisor: Samuel Kaski)

June – August 2023 **Duong Le**, *Summer Intern*, 3rd year BSc. student, Benchmarking Human-In-The-Loop and active learning strategies for molecular generation
Joint supervision with Yasmine Nahal

June – August 2023 **Xinyu Zhang**, *Summer Intern*, 1st year MSc. student, Probabilistic Neural Additive Models for Interpretable Machine Learning
Joint supervision with S.T. John

June – August 2023 **Kaul Rajat**, *BSc Thesis supervision*, 3rd year BSc. student, Learning Biological ODE models from time series data

## Programming skills

Programmation Python, R, Matlab, LaTeX, Shell

Tools GitHub, Vim

## Languages

Native French, fluent English