

Nikita Lagrange

PhD in Computer Science

Paris, France

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Research Interests

My research focuses on the development of information-theoretic causal discovery methods for complex, non-linear biomedical and health data.

Education

- 2022-2025 **Ph.D. in Computer Science**, CNRS, Sorbonne Université, Institut Curie, Paris, France
Thesis: *Learning Ancestral Graphs via a Search-and-Score Approach*
Supervisor: Dr. Hervé Isambert (Research Director, CNRS)
Co-supervisor: Dr. Barbara Bravi (Assistant Professor, Imperial College London)
Funded by the Imperial–CNRS Joint PhD Programme on Digital Transformations and Global Challenges
Defended on December 16, 2025
- 2020–2022 **M.Sc. in Bioinformatics & Modelling**, Sorbonne Université, Paris, France
Ranked 1/10 (high honours)
Research internship: *ksub – k-mer subtraction for molecular portraits*
Supervisor: Prof. Daniel Gautheret (I2BC, Paris-Saclay)
- 2018–2020 **B.Sc. in Life Sciences**, Sorbonne Université, Paris, France
High honours

Research Publications

Nikita Lagrange, Hervé Isambert. *An Efficient Search-and-Score Algorithm for Ancestral Graphs using Multivariate Information Scores for Complex Non-linear and Categorical Data*. ICML, 2025

Pacôme Delva, Paola Costa Cornejo, **Nikita Lagrange**, Laëtitia Pereira. *Hybridation et pédagogie par projet : retour d'expérience*. QPES 2025 Colloquium, 2025

Nadir Sella, Florent Guinot, **Nikita Lagrange**, Laurent-Philippe Albou, Jonathan Desponds, Hervé Isambert. *Preserving information while respecting privacy through an information theoretic framework for synthetic health data generation*. npj Digital Medicine, 2025

Franck Simon, Maria Colomba Comes, Tiziana Tocci, Louise Dupuis, Vincent Cabeli, **Nikita Lagrange**, Arianna Mencattini, Maria Carla Parrini, Eugenio Martinelli, Hervé Isambert. *CausalXtract, a flexible pipeline to extract causal effects from live-cell time-lapse imaging data*. eLife, 2025

Patent

- 2024 **Nikita Lagrange**, Hervé Isambert. *Clinical Data Analysis*.
European patent application EP24305127.3, filed January 22, 2024. Assigned to CNRS, rights transferred to F. Hoffmann-La Roche AG

Software Contributions

- 2022-2025 **MIIC: Multivariate Information-based Inductive Causation**
Contributed to the technical maintenance of the R package miicTeam/miic.R_package (R, C++), as well as the associated public webserver miic.curie.fr (PHP, HTML, JavaScript)
- 2024 **MIIC-Display**
Designed and implemented an interactive network visualization web page miic.curie.fr/vis_NL.php (PHP, HTML, JavaScript, D3.js, SQL)

Teaching and Consulting

- 2024-2025 **Data Analysis Consultant**, *Sorbonne Université*, Paris, France
Conducted exploratory data analysis on student satisfaction survey as part of the evaluation of a new pedagogy initiative
- 2022-2023 **Teaching Assistant**, *Sorbonne Université*, Paris, France
Taught 80 hours in total: Python and C programming to undergraduate students, and biological network inference to master's students. Supervised master's student projects

Presentations

- March 2025 **EDITE Doctoral Day**, Paris, France
3-minute thesis presentation: *In Search of Lost Causality in Data*
- Sept. 2024 **ADIC Young Researchers Retreat**, Prague, Czech Republic
Oral: *Reliable Causal Discovery from Information Theoretic Principles (State of the art & ongoing project)*
- Sept. 2023 **AI-DSCY Machine Learning Workshop**, Paris, France
Oral: *Improving Graphical Models Through Data Generative Approaches*

Academic Services

- 2024-2025 **Representative of doctoral students**, *EDITE Doctoral School Board*, Paris, France
Member of the doctoral school board; attended general assemblies and voted on proposals
- Oct. 2024 **Reviewer**, *NeurIPS 2024 BDU Workshop*

Summer Schools

- Sept. 2025 **P.A.I.S.S.**, Grenoble, France
Poster: *Efficient Ancestral Graph Learning for Complex Data*.
18.5h lectures & 4.5h tutorials.
- July 2025 **EEML**, Sarajevo, Bosnia and Herzegovina
Acceptance rate: $\sim 20\%$.
Poster: *Efficient Ancestral Graph Learning for Complex Data*.
16h lectures & 8h tutorials.

Skills and Languages

Programming Python, R, PyTorch, scikit-learn, C/C++, PHP, JavaScript, HTML, Bash, \LaTeX .
Tools Git; HPC: PBS, SLURM.
Languages French (native) · English (fluent)