Nikita Lagrange

PhD Student

Paris, France

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nikitalagrange.github.io

Research Interests

I am interested in developing new machine learning methods, particularly causal discovery algorithms, with a focus on their application to biomedical data

Education

Since Oct. 2022 **Ph.D. in Computer Science**, *CNRS, Sorbonne University, Institut Curie*, Paris, France
Thesis title : Modelling hidden causes in disease progression
Supervisor : Dr. Hervé Isambert (Research Director, CNRS)
Co-supervisor : Dr. Barbara Bravi (Lecturer, Imperial College London)
Funded through the Imperial–CNRS Joint PhD Programme on Digital Transformations and Global Challenges
Expected defense : Fall 2025

2020 – 2022 **M.Sc. in Bioinformatics & Modelling**, *Sorbonne University*, Paris, France
Graduated with high honours (ranked 1st out of 10)
Research internship : ksub – k-mer subtraction for molecular portraits
Supervisor : Prof. Daniel Gautheret (I2BC, Paris-Saclay)
Courses : machine learning, sequence and structural bioinformatics, biological networks, applied mathematics, graph theory, computational neuroscience

2018 – 2020 **B.Sc. in Life Sciences**, *Sorbonne University*, Paris, France
Graduated with high honours
Interdisciplinary training in biology, mathematics and computer science

Teaching and consulting

Since 2024 **Data Analysis Consultant**, *Sorbonne University*, 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 University*, 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

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. Proceedings of the 42nd International Conference on Machine Learning (ICML)*, 2025

Pacôme Delva, Paola Costa Cornejo, **Nikita Lagrange**, Laëtitia Pereira. *Hybridation et pédagogie par projet : retour d'expérience. QPES 2025 Colloquium*, Brest, France, May 19–23, 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

Nikita Lagrange, Hervé Isambert. *An efficient search-and-score algorithm for ancestral graphs using multivariate information scores. arXiv preprint*, 2024

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

Since 2022 **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)

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 presentation : *Reliable Causal Discovery from Information Theoretic Principles (State of the art & ongoing project)*

Sept. 2023 **AI-DSCY Machine Learning Workshop**, Paris, France
Oral presentation : *Improving Graphical Models Through Data Generative Approaches*

Academic Services

Since 2024 **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*

Skills and Languages

Technical skills

Programming
- **Advanced :** Python, R
- **Intermediate :** C, C++, PHP, JavaScript, HTML, Bash, LaTeX
- **Basic :** MATLAB, Mathematica

Tools – Git, PBS, SLURM

Languages

French native

English fluent

Russian basic