Alix Leroy

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PhD student in applied computational mathematics interested in interdisciplinary research

Education

2021 - (November 2025)	**PhD in Applied Computational Mathematics**, *University of Edinburgh, Scotland, UK*, Supervised by Dr. Jonas Latz, Prof. Des Higham and Prof. Ben Leimkuhler. Thesis title: Adaptive stepsize algorithms for Langevin dynamics and application to graph based methods for image classification.
2020 - 2021	**Master of Science in Applied Computational Mathematics**, *University of Edinburgh*. *Graduated with distinction.*
2017 - 2018	**Master of Science in Environment and Development**, *LSE, London, UK*. *Graduated with High Merit.*
2014 - 2017	**Bachelor in Engineering and Physics**, *Université Libre de Bruxelles, Belgium*. *Graduated with Cum Laude*
2012 - 2015	**Bachelor in Business Engineering**, *Université Libre de Bruxelles, Belgium*. *Graduated with Cum Laude*

Research and Work Experience

Nov 2024	**Research exchange**, *Freie Universität Berlin*, Supervised by Prof. Claudia Schillings, Germany. A month exchange on a research project working on ensemble Kalman inversion.
May 2019 - August 2020	**Quantitative researcher**, *What works for Children Social Care*. Research involved in the design, implementation and analysis of impact evaluations for improving children social care. Main lead on the re-analysis of 63 educational RCTs, it involves cleaning processes for the data, inclusion of covariates from large national database, with implementation of missing data strategies and appropriate model selections. Works includes as well reporting and presenting the analysis of findings to DfE representatives.
August 2018- April 2019	**Research coordinator**, *Abdul Latif Jameel Poverty Action Lab*, Supervised by Prof. John Weigel. Field coordinator of a Randomized Control Trial (RCT) with the aim of assessing the socio-economic impact of property taxation in rural DR Congo. Work includes managing data collection, cleaning and preanalysis (with STATA), managing a team of 20 enumerators, navigating local bureaucracy and, working closely with the Taxation Ministry to ensure that the study protocols are followed.
August 2016	**Research assistant**, *Biomedical research department, Université Libre de Bruxelles*. Test mechanical systems for stomach surgery, involves testing tensile properties of soft plastics, designing and printing moulds for samples with 3D design software (solidworks).

Trainings

April 2025	**Workshop**, *Rising Stars in Computational and Data Sciences*, Austin, United States.
May 2024	**Summer School**, *Summer School on Bayesian Filtering: Fundamental Theory and Numerical Methods*, International Center for Mathematical Sciences, Scotland.
April 2024	**Workshop**, *Numerical Analysis in the Era of Data Science*, International Center for Mathematical Sciences, Scotland.
September 2023	**Summer School**, *Summer School on Mathematical Optimization for Machine Learning*, Zuse Institut, Berlin.
June 2023	**Workshop**, *The mathematical and statistical foundation of future data-driven engineering program*, Isaac Newton Institute(INI), Cambridge, UK..

March 2023	**Workshop**, *MAC-MIGS Deep Dive on Dynamical Model Discovery*, International Center for Mathematical Sciences, Scotland.
November 2022	**Workshop**, *MAC-MIGS Deep Dive in High Dimensional Sampling and Applications*, International Center for Mathematical Sciences, Scotland.

Meetings

March 2025	**Talk**, *SIAM Conference on Computational Science and Engineering*, Forth Worth, United States.
June 2024	**Poster presentation**, *New Directions for Stochastic Differential Equations and Machine Learning*, International Center for Mathematical Sciences, Scotland.
May 2024	**Participant**, *6th Workshop on Sequential Monte Carlo Methods*, International Center for Mathematical Sciences, Scotland.
Feb 2024	**Talk**, *SIAM Conference on Uncertainty Quantification*, Trieste, Italy.
Sept 2023	**Contributed talk**, *Mathematical Optimization for Machine Learning*, Zuse Institut, Berlin, Germany.
July 2023	**Mini-symposium organiser**, *29th Biennial Numerical Analysis Conference*, Glasgow, UK.
June 2023	**Poster presentation**, *Foundations of Computational Mathematics 2023*, Paris, France.
May 2023	**Poster presentation**, *Mathematical Foundations of Data-driven Engineering*, International Center for Mathematical Sciences, Edinburgh, UK.

Publications

2024	**Alix Leroy**, Benedict Leimkuhler, Jonas Latz and Desmond J. Higham, Adaptive stepsize algorithms for Langevin dynamics, *SIAM Journal on Scientific Computing (SISC)*, in-press `https://arxiv.org/abs/2403.11993`

Awards & Grants

May 2025	**Research exchange grant**, *DAAD*, Freie Universität Berlin, Berlin, Germany.
	▪ A 3-months research grant for a research exchange on a co-created project "A competition for ressource model for axonal self-sorting in Drosophila visual map formation" with Prof. Max Von Kleist.
April 2025	**Nominated**, *Rising Stars*, Oden Institute, The University of Texas, Austin, U.S..
	▪ Travel award to attend the Rising Stars in Computational and Data Sciences networking event.
March 2025	**Travel Award**, *SIAM*, Fort Worth, Texas, U.S..
	▪ Travel award to attend the SIAM Conference on Computational Science and Engineering
June 2022	**MAC MIGS PhD programme grant**, *EPSRC-funded PhD programme in Mathematical Modelling, Analysis and Computation*, Edinburgh, UK.
	▪ Funding for an intensive 4-year training and research programme
May 2022	**AFR PhD grants**, *Luxembourg National Research Fund*, Luxembourg, Luxembourg.
	▪ PhD and travel funding for 4 years or until completion of the PhD degree.

Teaching

Sept 2022 - Present	**Tutor**, *University of Edinburgh*.
	Courses tutored: Numerical Partial Differential Equations(MATH11207), Research Skills for Computational Mathematics (MATH11197)), Introduction to Linear Algebra (MATH08057) and Computer Lab for Optimisation.

Leadership and Volunteering

2021- 2024	**Member**, *Piscopia Initiative*, University of Edinburgh, UK.
	▪ Member of the Piscopia initiative which aims at encouraging underrepresented genders to pursue a PhD in Mathematics, help organise regular network events and provide support and presentation for PhD applicants.
2023	**Participant**, *Mathematics Showdown*, Edinburgh Science Festival, UK.
	▪ As part of the Edinburgh Science Festival, I presented my work in a short comedy talk to a general audience, prepared with a professional Scottish stand-up comedian.

2021- 2023 **Elected student representative**, *MAC-MIGS programme*, University of Edinburgh, UK.
- Elected student representative for the MAC-MIGS cohort. Coordination of student meetings, gather feedback and regular meeting with MAC MIGS management board.

2017 **co-Founder**, *Show me how feminist you are (Balance ton Feminisme)*, ULB, Bruxelles, Belgium.
- Feminist campaign on campus. Involved interviewing students on campus and deconstructing sexist stereotypes, followed by an exhibition to open discussions on discuss everyday sexism.

2016 **Founder and manager**, *The Polytech Game*, Engineering Faculty, ULB, Bruxelles, Belgium.
- A one-day engineering challenge that gathers 70 high school students and 17 engineering students. Create and manage the project from scratch (marketing, promotion, budget and fund raising, logistic, coordination). The latest edition happened on the 16/03/2024.

2016- 2018 **Elected student administrator**, *Student union of the Université Libre de Bruxelles*, Belgium.
- Elected student administrator for the engineering faculty (1000 students) for 2 years for the the central representative body of the 28 000 students in university boards (where student's voice accounts for 20%).
- Coordination of the association, tasked with managing delegates, preparation and mediation of meetings, and delegation of tasks. Responsible for gender issues, involves a survey campaign, meeting with student associations and lobbying to implement guidelines to foster safety on campus.

Skills

Computer Extensive experience working with computer cluster in Python, C++ and experience with Matlab, Stata and R

Sports Rugby, Hiking, Surfing