

Research Interests

I search to improve theory of Trustworthy ML, in particular when data is decentralized. I am interested in social consequences of AI, from technical, philosophical, social and regulatory points of view.

Current Employment

2026 - **Chargée de recherche CNRS**, *Lamsade, Dauphine*, Paris

Previous Employment

- 2025 **Postdoctoral Fellow**, *ISTA*, Austria, in C. Lampert and M. Mondelli groups
- 2024 (3 mo) **Research Assistant**, *PariSanté Campus*, Supervisor Olivier Cappé and Jamal Atif
- 2024 (2 mo) **Summer Research Program**, *G-Research*, Supervisor Léo Miolane
- 2021 (5 mo) **Private Federated Learning**, *Apple*, Supervisor Matt Seigel.

Education

- 2021–2024 **PhD**, *INRIA*
Differential Privacy for Decentralized Learning. Supervisor Aurélien Bellet
- 2017–2021 **Master Degree ENS Diploma**, *ENS Lyon*
- 2020–2021 **Master Degree Civil Engineer**, *Mines ParisTech*
- 2019–2021 **Master Degree in Philosophy**, *Paris 1 Panthéon Sorbonne*
- 2019–2020 **Master Degree in Maths (MVA)**, *ENS Paris-Saclay (18/20)*

Honors, Grants and Awards

- 2026 **Cours Peccot**, *Collège de France*, Paris
- 2026 **Research Fellowship**, *Simons Institute, Berleley, Federated Learning Semester*
- 2025-2028 **Tremplin Chair**, *Prairie AI Cluster (research funding of 145k€)*
- 2025 **SSFAM PhD Award**, 500€ and invitation to CAp
- 2025 **Runner-up AFIA PhD Award**, 500€
- 2025 **Cluster of Excellence (CoE) Fellowship**, 7k€ from FWF (*Austrian Science Fund*)
- 2023 **Young Talents France L'Oréal-UNESCO Award**, 15k€ prize, given to 35 French PhD or postdocs in STEM, selected by Académie des Sciences
- 2022 & 2023 **Quant Coding Challenge Winner**, 250€ each edition
- 2022 **Women in Quant Finance**, 500€ prize, given to PhD Students
- 2014 **EGMO Participant**, Selected in French National team at European Girls Mathematical Olympiad, Antalya 2014

Teaching

- 2026 –2027 **Trustworthy Machine Learning**, *Master IASD*, PSL
- 2025 **Trustworthy Machine Learning**, *ISTA*, 20 hours

- 2022 – 2024 **Dimension Reduction**, *University of Lille*, 24 hours per year
 2022 **Data Anonymization**, *Alvancity*, 18 hours
 2021 **Ethics in ML**, *Eiffel University*, 12 hours tutorial, Teaching assistant

Service

- 2026-2030 **Société Savante Francophone d'Apprentissage Machine**, *Vice President and Treasurer*

Event Organization

- 2026 **NeurIPS**, *Satellite Chair*, Paris
 First official satellite venue in Europe for NeurIPS. 4k expected participants and budget around 2M€
- 2026 **European Girls' Mathematical Olympiad (EGMO)**, *Organizer*, Bordeaux, France
 Main Organizer of 2026 edition, French representative at EGMO Board. More than 250 participants, 600 persons in a week. Raised more than 600k€. Total budget above 1M€. First edition of international olympiad in France since 1983.
- 2025 **EurIPS**, *Affinity Chair*, Copenhagen, Denmark
- 2025 **PPML Workshop at EurIPS**, *Organizer*, Copenhagen, Denmark
- 2023 – 2025 **NeurIPS In Paris**, *Organizer*, SCAI Paris
 Two-day workshop with 250 participants. Talks, poster session, mentoring session.
- 2017 **Rendez-vous des Jeunes Mathématiciennes (RJM)**, *Organizer*, Lyon
 Organize the first edition in Lyon of Young Mathematician Women 30 girls, 10 volunteers/speakers on a weekend. Responsible for housing, food, travel, maths and leisure.

Reviewing Activities

Journal: JMLR 2025, TMLR 2024, IEEE S&P 2023, IEEE Journal on Selected Areas in Information Theory, T-IFS 2022
Conferences: ICML 2022-2026, UAI 2025, NeurIPS 2022-2025, ICLR 2024 & 2026, AISTATS 2023, Top 10% Reviewers at AISTATS 2022, Top 10% Reviewers at ICML 2022
Workshops: TPDP 2026, SynthData ICLR 2025 (among Best Reviewers), Privacy Regulation and Protection in Machine Learning ICLR 2024, FL-ICML 2023

Co-supervision

Uddalak Mukherjee: PhD student (2026 -), Alireza Mirrokni (2025): ISTernship leading to ICML paper (now at EPFL), Mihaela Hudişteanu (2025): ISTernship leading to runner-up Best Poster Award at EurIPS PPML workshop (awarded Sophie Germain scholarship), Abdellah El Mrini (2023): Master's thesis leading to ICML paper (now at EPFL)

Supervision

Lila Hammache (2026): Master internship

Volunteering (Selected actions)

Promoting Women in Science I taught and contributed to various events promoting girls and women in Maths and Computer Science, including Girls Can Code (GCC), Rendez-vous des Jeunes Mathématiciennes et Informaticiennes (RJMI), and European Girls Mathematical Olympiad.

Science popularization I contributed to a TV-show, a podcast, and several interviews for written and online press on my research and general scientific topics. I volunteered in several maths olympiads and taught in Lyon Maths Club and to the Salon Culture et Jeux Mathématiques.

Selected Talks

- *Privacy of Decentralized Machine Learning*, Data Privacy in Machine Learning, Pioneer Centre for Artificial Intelligence, Aarhus, 2026
- *Various Ways to Set Privacy Budgets*, Crossroads of AI & Society Workshop, Rice University, Paris, 2026
- *Optimizing Performative Learning*, Learning and Optimization in Luminy, CIRM, 2026
- *Privacy of Decentralized Machine Learning*, Learning from Heterogeneous Sources Workshop, Simons Institute, Berkeley, 2026
- *Pairwise Network Differential Privacy*, Trust in Decentralized Systems Workshop, Simons Institute, Berkeley, 2026
- –, Trustworthy and Federated Learning with Medical and Imaging Applications Workshop, Leuven, 2025
- –, Bertinoto, ELSA Workshop on Privacy-Preserving Machine Learning, Contributed talk, 2025
- –, Tübingen AI Center, 2024
- –, ELLIS Young Innovators, ISTA, 2024
- *Differentially Private DL with Random Walks*, Journée MAS, SMAI, Poitiers, 2024
- *Differential Privacy for Decentralized Learning*, Symposium Madics, Blois, 2024
- *Fairness in ML, Quantifying Real-world overfitting*, Algorythms seminar, IHPST, 2023
- *DP for decentralized optimization* CIRM, Machine Learning and Signal Processing on Graphs, 2022
- *Privacy Amplification by Decentralization*, CAP, Vannes, 2022
- *Quantifier ou dédouaner, La mathématisation de l'équité pour Compas*, ENTPE colloque La politique des grands nombres, Lyon, 2022

Publications

- [1] Aurélien Bellet, Edwige Cyffers, Davide Frey, Romaric Gaudel, Dimitri Lerévérend, and François Taïani. “Unified Privacy Guarantees for Decentralized Learning via Matrix Factorization”. In: *International Conference on Learning Representations (ICLR 2026)*. 2026.
- [2] Edwige Cyffers, Alireza Mirrokni, and Marco Mondelli. “Optimal Regularization for Performative Learning”. In: *International Conference on Machine Learning* (July 2026).
- [3] Marc Damie and Edwige Cyffers. “Fedivertex: a Graph Dataset based on Decentralized Social Networks for Trustworthy Machine Learning”. In: *ACM Web Conference 2026, Short Papers Track*. 2026.
- [4] Edwige Cyffers. “Setting ε is not the Issue in Differential Privacy”. In: *Advances in Neural Information Processing Systems 39 (NeurIPS 2025)*. 2025.
- [5] Mihaela Hudisteanu, Nikita P. Kalinin, and Edwige Cyffers. “DP-MicroAdam: Private and Frugal Algorithm for Training and Fine-tuning”. In: *WiML NeurIPS 2025, PPML EurIPS 2025 (Runner-up Best Poster Award)*. 2025.
- [6] Edwige Cyffers, Aurélien Bellet, and Jalaj Upadhyay. “Differentially Private Decentralized Learning with Random Walks”. In: *International Conference on Machine Learning* (July 2024).
- [7] Edwige Cyffers, Muni Sreenivas Pydi, Jamal Atif, and Olivier Cappé. “Optimal Classification under Performative Distribution Shift”. In: *Advances in Neural Information Processing Systems (NeurIPS) 37* (Dec. 2024).
- [8] Abdellah El Mrini, Edwige Cyffers, and Aurélien Bellet. “Privacy Attacks in Decentralized Learning”. In: *International Conference on Machine Learning* (July 2024).
- [9] Edwige Cyffers, Aurélien Bellet, and Debabrota Basu. “From noisy fixed-point iterations to private ADMM for centralized and federated learning”. In: *International Conference on Machine Learning* (2023), pp. 6683–6711.

- [10] Edwige Cyffers and Aurélien Bellet. “Privacy amplification by decentralization”. In: *International Conference on Artificial Intelligence and Statistics* (2022), pp. 5334–5353.
- [11] Edwige Cyffers, Mathieu Even, Aurélien Bellet, and Laurent Massoulié. “Muffliato: Peer-to-peer privacy amplification for decentralized optimization and averaging”. In: *Advances in Neural Information Processing Systems* 35 (2022), pp. 15889–15902.
- [12] Jean Ogier du Terrail, Samy-Safwan Ayed, Edwige Cyffers, Felix Grimberg, Chaoyang He, Regis Loeb, Paul Mangold, Tanguy Marchand, Othmane Marfoq, Erum Mushtaq, et al. “Flamby: Datasets and benchmarks for cross-silo federated learning in realistic healthcare settings”. In: *Advances in Neural Information Processing Systems* 35 (2022), pp. 5315–5334.