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Research Interest

I am a postdoctoral researcher at Meta in the privacy preserving machine learning team within Central Applied Science. My research interests are in machine learning, optimization, and distributed systems. Specific topics include: federated and on-device learning, privacy-preserving machine learning, large-scale machine learning and distributed optimization.

Work Experience

2024-present **Postdoctoral researcher**, *Meta*, New York City, NY, the United States of America

Spring 2023 **Visiting scholar**, *The University of Texas at Austin*, Austin, TX, the United States of America
Host: Dr. Aryan Mokhtari

Education

2020–2023 **Ph.D. in computer science**, *Sophia-Antipolis, France*, Inria, Université Côte d'Azur
Advisor: Dr. Giovanni Neglia
Thesis: Tackling Heterogeneity in Federated Learning Systems
Funding: Accenture Labs

2018–2019 **MS, MVA: Mathematics, Computer Vision, Machine Learning**, *ENS Paris-Saclay*, Cachan, France

2016–2019 **MS, Applied Mathematics**, *ENSTA Paris*, Palaiseau, France

2014–2016 **Classes Prépas**, *Lycée Ibn-Abdoun*, Khouribga, Morocco

Publications

Francesco Diana, **Othmane Marfoq**, Chuan Xu, Giovanni Neglia, Frédéric Giroire, and Eoin Thomas. Attribute inference attacks for federated regression tasks. In *Proceedings of the AAAI Conference on Artificial Intelligence*, volume 39, pages 16271–16279, 2025.

Younes Ben Mazziane and **Othmane Marfoq**. Count-min sketch with conservative updates: Worst-case analysis. *arXiv preprint arXiv:2405.12034*, 2024.

Othmane Marfoq, Giovanni Neglia, Laetitia Kameni, and Richard Vidal. Federated learning for data streams. In *Proceedings of The 26th International Conference on Artificial Intelligence and Statistics*, Proceedings of Machine Learning Research. PMLR, 2023.

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Emilio Leonardi. Federated learning under heterogeneous and correlated client availability. *IEEE/ACM Transactions on Networking*, 32(2):1451–1460, 2024.

Angelo Rodio, Francescomaria Faticanti, **Othmane Marfoq**, Giovanni Neglia, and Emilio Leonardi. Federated learning under heterogeneous and correlated client availability. In *IEEE INFOCOM 2023 - IEEE Conference on Computer Communications*, pages 1–10, 2023.

Caelin Kaplan, Chuan Xu, **Othmane Marfoq**, Giovanni Neglia, and Anderson Santana de Oliveira. A cautionary tale: On the role of reference data in empirical privacy defenses. *Proceedings on Privacy Enhancing Technologies*, 2024.

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 *Thirty-sixth Conference on Neural Information Processing Systems Datasets and Benchmarks Track*.

Othmane Marfoq, Giovanni Neglia, Laetitia Kameni, and Richard Vidal. Personalized federated learning through local memorization. In *Proceedings of the 39th International Conference on Machine Learning*, Proceedings of Machine Learning Research. PMLR, 2022.

Othmane Marfoq, Giovanni Neglia, Aurélien Bellet, Laetitia Kameni, and Richard Vidal. Federated multi-task learning under a mixture of distributions. In *Advances in Neural Information Processing Systems*, volume 34, 2021.

Othmane Marfoq, Chuan Xu, Giovanni Neglia, and Richard Vidal. Throughput-optimal topology design for cross-silo federated learning. In *Advances in Neural Information Processing Systems*, volume 33, 2020.

Service and Activities

I am serving/served as reviewer for: International Conference on Artificial Intelligence and Statistics (AISTATS'22; AISTATS'23; AISTATS'24), International Conference on Machine Learning (ICML'22; ICML'23; ICML'24; ICML'25), Federated Learning Systems workshop at MLSys (FLSys'23), International Conference on Learning Representation (ICLR'23; ICLR'24), Neural Information Processing Systems (NeurIPS'22, **Top reviewer**; NeurIPS'23; NeurIPS'24, NeurIPS'25), Annual AAAI Conference on Artificial Intelligence (AAAI'25), IEEE Transactions on Mobile Computing