

Nidham Joseph **Gazagnadou**

RESEARCH SCIENTIST IN FEDERATED LEARNING, EDGE AI
AND VISION FOUNDATION MODELS

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Professional Experience

Sony AI, Privacy-Preserving Machine Learning team. RESEARCH SCIENTIST

Zürich, Switzerland

RESEARCH INTERESTS: FEDERATED LEARNING, EDGE AI, VISION FOUNDATION MODELS,
COMPUTER VISION PRIVACY

Apr. 2022 - Now

Télécom Paris. PH.D. IN STOCHASTIC OPTIMIZATION FOR MACHINE LEARNING

Paris, France

RESEARCH INTERESTS: STOCHASTIC VARIANCE-REDUCED GRADIENT METHODS,
RANDOMIZED ITERATIVE METHODS

Apr. 2018 - Dec. 2021

- **Thesis manuscript:** available [here](#)
- **Open source codes and packages**
 - **RidgeSketch:** Sketch-and-project methods for solving the ridge problem, Python (jointly with FAIR NY)
 - **StochOpt:** Stochastic optimization methods for solving the ERM, Julia
 - **BenchOpt:** Benchmark of optimization algorithms simple and open source, Python & Julia
- **Funding**
 - 2020: **€5,3k** Mobility fundings to visit Alex Townsend at Cornell University
 - 2019: NeuriPS 2019 Travel Award
 - 2018 - 2021: **€100k** 3-year PhD fellowship, DIM Math Innov, Région Île-de-France
- **Teaching assistant:** Courses on Optimization and Machine Learning at graduate level (>64 h/year)

Education

Télécom Paris. PH.D. IN APPLIED MATHEMATICS

Paris, France

Stochastic Optimization for Machine Learning, supervised by [Robert Gower](#) and [Joseph Salmon](#)

2018 - 2021

ENS Cachan, MVA. MS IN APPLIED MATHEMATICS

Cachan, France

Majors: Mathematics, Machine Learning, Computer Vision. **High honors**

2017 - 2018

ENSTA Paris. DEGREE IN ENGINEERING (EQUIVALENT TO BS AND MS)

Palaiseau, France

Majors: Optimization, Probability and Statistics. **GPA: 3,99**

2014 - 2018

Papers

- K. Patel, **N. Gazagnadou**[†], L. Wang, L. Lyu “Personalization Mitigates the Perils of Local SGD for Heterogeneous Distributed Learning”, **preprint (under review)**, 2024
- K. Yi, **N. Gazagnadou**[†], P. Richtárik, L. Lyu. “FedP3: Federated Personalized and Privacy-friendly Network Pruning under Model Heterogeneity” **ICLR**, 2024
- X. Sun, **N. Gazagnadou**[†], V. Sharma, L. Lyu, H. Li, L. Zheng. “Privacy Assessment on Reconstructed Images: Are Existing Evaluation Metrics Faithful to Human Perception?” **NeurIPS spotlight**, 2023
- Y. Deng*, **N. Gazagnadou***, J. Hong, M. Mahdavi, L. Lyu. “On the Hardness of Robustness Transfer: A Perspective from Rademacher Complexity over Symmetric Difference Hypothesis Space”. **arXiv:2302.12351**, 2023
- R. M. Gower, M. Blondel, **N. Gazagnadou**, F. Pedregosa. “Cutting Some Slack for SGD with Adaptive Polyak Stepsizes”. **arXiv:2202.12328**, 2022

- **N. Gazagnadou**, M. Ibrahim, R. M. Gower. “RidgeSketch: A Fast Sketching Based Solver for Large Scale Ridge Regression”. **SIAM Journal on Matrix Analysis and Applications (SIMAX)**, 2022
- **N. Gazagnadou**. “Sketched ADI: a randomized iterative method for solving large scale Sylvester matrix equations”. **PhD Thesis chapter**, 2021
- O. Sebbouh, **N. Gazagnadou**, S. Jelassi, F. Bach, R. M. Gower. “Towards closing the gap between the theory and practice of SVRG”. **NeurIPS**, 2019
- **N. Gazagnadou**, R. M. Gower, J. Salmon. “Optimal Mini-Batch and Step Sizes for SAGA”. **ICML**, 2019

* denotes equal contribution and † main internship supervisor.

Skills

PROGRAMMING

Python, PyTorch, TensorFlow, TFLite, C++, Docker

LANGUAGES

French Native
Farsi Intermediate

English Fluent
Arabic Notions

Academic Services

Conference and journal reviewer.

- NeurIPS 2020, 2021 (Outstanding reviewer award) & 2022
- ICML 2023 & 2024
- ICLR 2024
- Journal of Machine Learning Research (JMLR)
- Numerical Algorithms - Springer

Hobbies

Learning German and Japanese

Since 2023

French literature and sociology

Examples: Despentès, Houellebecq, Céline, Aron, Weber

Sports: running, football, basketball, hiking