Othmane MARFOQ

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Training and Qualifications

Ph.D. in computer science   **Sophia-Antipolis, France**

Université Côte d'Azur / Inria   *2019–present*

o Design new distributed learning algorithms with a particular focus on communication constraints, and study analytically their performance and guarantees;
o Implement distributed machine learning algorithms using libraries like PyTorch;

Msc MVA: Mathematics, Computer Vision, Machine Learning   **Cachan, France**

ENS Paris-Saclay   *2018–2019*

Courses:

o Object recognition and computer vision.
o Algorithms for speech and natural language processing.
o Probabilistic graphical models.
o Foundations of Distributed and Large Scale Computing Optimization.
o Reinforcement learning.
o Advanced learning for text and graph data.
o Kernel Methods for machine learning.

Master in applied mathematics   **Palaiseau, France**

ENSTA Paris   *2016–2019*

Courses:

o Non-differentiable optimization and proximal methods.
o Operational research and big data.
o Complexity theory.
o Differentiable optimization.
o Numerical probabilistic and statistical methods.
o Automatic identification and movement planning.
o Finite element method and functional analysis.
o Optimal Control.

CPGE Ibn-Abdoun   **Khouribga, Maroc**

Lycée Ibn-Abdoun   *2014–2016*

Advanced courses in mathematics, physics and computer science, to pass the highly competitive examinations, leading to the most prestigious universities of Science and Engineering in France

Experiences/Trainee-ships

Smiths Detection   **Vitry-sur-Seine, France**

End-of-studies internship   *Avril-Août 2019*

o Artificial intelligence based X-ray image retrieval;
o Cargo X-ray Images captioning using deep learning techniques;

Lixoft   **Antony, France**

Research Internship   *Mai-Août 2018*

o Implementation of numerical strategies for statistical pharmaceutical models comparison and selection;
o Survival data study: construction and implementation of non-parametric survival function estimator for interval censored data;

Skills and languages

o **Programming languages**: Python, C/C++, R
o **Languages**: French (Bilingual), Arabic (Native), English (TOEIC: 915)
o **Databases**: MySQL, MongoDB.
o **Skills**: Federated Learning, Distributed Optimisation, Deep Learning, Computer Vision, Natural Language Processing.

Achievement and distinctions

o Among the best 10% of first and second year students of ENSTA Paris
o Moroccan Merit Scholarship (2016-2019)

Publications

[1] Othmane Marfoq, Giovanni Neglia, Aurélien Bellet, Laetitia Kameni, and Richard Vidal. Federated multi-task learning under a mixture of distributions. *arXiv preprint arXiv:2108.10252*, 2021.

[2] Othmane Marfoq, Chuan Xu, Giovanni Neglia, and Richard Vidal. Throughput-Optimal Topology Design for Cross-Silo Federated Learning. In *34th Conference on Neural Information Processing Systems* (*NeurIPS 2020*), Vancouver, Canada, December 2020. NeurIPS 2020.