

CONSTANTIN PHILIPPENKO

Ph.D student in Federated Learning, École polytechnique, CMAP

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Paris, France



INSTITUT
POLYTECHNIQUE
DE PARIS

RESEARCH EXPERIENCES

Ph.D. Student in Federated Learning

École polytechnique, CMAP Laboratory

Dec 2019 – Ongoing

Paris, France

Under the supervision of Eric Moulines and Aymeric Dieuleveut

- Trade-offs of Federated Learning: Algorithms and Methods for Privacy Preserving Multi-Agent Learning.
- Collaboration with Accenture Labs in Sophia-Antipolis.

Python Pytorch Linux GPU

R&D Internship in Machine Learning

Forecsys

May 2017 – Jul 2017

Moscow, Russia

Under the supervision of Vadim Strijov

- Algorithms for time series recognition based on machine learning.

Python Scikit-Learn Linux

R&D Internship on polymers

Conservatoire national des arts et Métier

Spring 2015

Paris, France

Under the supervision of Cyrille Sollogoub

Research on the industrial use of polymers.

TEACHING EXPERIENCES

Tutoring in Optimization/Deep Learning (MAP545)

École Polytechnique

2021, 2022 (2x46 hours)

Tutoring in Probability (MAP361)

École Polytechnique

2020, 2021 (2x12 hours)

Supervising students during their final internship (PFE)

Emines, Benguerir, Morocco

2022 (12 hours)

Remedial courses in Mathematics for Middle School

Lycée Stanislas

2018-2023 (5x30 hours)

PROFESSIONAL EXPERIENCES

ActivePivot Consultant

Global Market Solution

Feb 2018 – Dec 2019

London (UK) and Paris (France)

Development of informatics tools devoted to extract valuable information from massive volume of financial data.

Consultant at:

- Société Générale, Jun 2019 – Nov 2019, Paris.
- HSBC, Oct 2018 – Jun 2019, London.
- ActiveViam, Feb - Jul 2018, London (Internship).

ActivePivot Java Maven Spark Spring OLAP Cube

EDUCATION

École polytechnique

Ph.D. in Applied Mathematics

2019 – 2023

Palaiseau, France

Distributed optimization, federated learning, compression, data heterogeneity.

Ensimag

Applied Mathematics, 3D Animation.

2015 – 2018

Grenoble, France

French engineering school “Grande École” in computer science and applied mathematics.

Moscow Institut of Pysics and technologies

Machine Learning, Statistiques.

Spring 2017

Moscow, Russia

Lycée Saint-Louis

Mathematics, Physics.

2013 – 2015

Paris, France

Preparatory classes for competitive entrance examinations to French “Grandes Écoles”.

ASSOCIATIVE LIFE



Member of the French SMAI

Société de Mathématiques Appliquées et Industrielles, since 2020.



Doctoral students' delegate

CMAP Laboratory, 2021-2022



Congress of Applied Mathematics

President of the CJC-MA 2021 (Congress of Young Researcher in Applied Mathematics), École Polytechnique, October 2021.



Phantasio - Theater company

President and Founder of a theater's company.



Water-Polo in competition

Nice, Grenoble, Moscou, Paris.

LANGUAGES

French
English
Russian
German



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PUBLICATIONS

- ✎ Constantin Philippenko and Aymeric Dieuleveut, Convergence rates for distributed, compressed and averaged least-square regression: application to Federated Learning, 2023, *To be submitted at JMLR*
- ✎ Jean Ogier du Terrail et al., FLamby: Datasets and Benchmarks for Cross-Silo Federated Learning in Realistic Healthcare Settings, 2022, *Thirty-sixth Conference on Neural Information Processing Systems Datasets and Benchmarks Track*
- ✎ Constantin Philippenko and Aymeric Dieuleveut, Preserved central model for faster bidirectional compression in distributed settings, 2021, *Advances in Neural Information Processing Systems*, 34.
- ✎ Constantin Philippenko and Aymeric Dieuleveut, Artemis: tight convergence guarantees for bidirectional compression in Federated Learning, 2020, *arXiv: 2006.14591*

TALKS

- 🎤 54èmes Journées de Statistique, organizers: Société Française de Statistique, Bruxelles (Belgique), July 2023
- 🎤 Hi!Paris Reading group, organizers: Yohan Petetin, Hi!Paris, Paris (France), June 2023
- 🎤 Reading group of the DYOGENE Inria's team, organizers: Kevin Scaman and Laurent Massoulié, Inria, Paris (France), December 2022
- 🎤 Learning and Optimization in Luminy, organizers: Alexandre d'Aspremont et al., CIRM, Marseille (France), October 2022
- 🎤 StatMathAppli, organizers: Christophe Giraud and Estelle Kuhn, Villa Clythia in Fréjus, France, August 2022
- 🎤 Math for Machine Learning Summer School, organizer: Eric Moulines et al., Emines-UM6P, Benguerir (Morocco), July 2022
- 🎤 Advances in Neural Information Processing Systems, Online Talk, December 2021
- 🎤 Recent advances in machine learning and uncertainty, organizers: Josselin Garnier et al., CIRM, Marseille (France), June 2021
- 🎤 52èmes Journées de Statistique, organizers: Société Française de Statistique, Nice (France), June 2021
- 🎤 Misscausal Team at INRIA, organizer: Julie Josse, Paris (France), November 2020
- 🎤 SIMPAS Team at CMAP, organizers: Emmanuel Gobet and Erwan Le Pennec, Paris (France), November 2020

AWARDS

- 🏆 Accesit given by the jury of the "2022 STIC Doctoral Prizes", Fall 2022.
Organisers: Labex DigiCosme, école doctorale STIC de l'Université Paris Saclay, école doctorale de l'Institut Polytechnique de Paris.