

CHEIK TRAORÉ

Postdoctoral researcher, Toulouse School of Economics – TSE
1 Esplanade de l'Université, 31080 Toulouse Cedex 06, France
Email ◇ cheiktraore.com ◇ Google Scholar ◇ Github

INTERESTS

Broadly speaking, I am interested in the mathematics of data science. Specifically, my interests lie at the intersection of continuous optimization and data science (machine learning, deep learning, statistical learning, sampling, signal processing, inverse problems, etc.).

ACADEMIC AND RESEARCH POSITIONS

TIRIS Junior Fellow

September 2025 - ...

Working with Edouard Pauwels and Jérôme Bolte
Department of mathematics and statistics
Toulouse School of Economics – TSE, France

Postdoctoral researcher

December 2024 - September 2025

Worked with Peter Ochs
Mathematical Optimization for Data Science Group
Department of mathematics
Saarland University, Germany

Postdoctoral researcher

June 2024 - November 2024

MaLGa Machine Learning Genoa Center
Department of mathematics
University of Genoa, Italy

EDUCATION

Ph.D. in Mathematics and Applications

Defended on June 10, 2024

MSCA¹ Doctoral Network, TraDE-OPT
University of Genoa, Italy
Thesis: *Large-scale convex optimization:
parallelization and variance reduction*
Supervisors: Silvia Villa (*primary*), and Saverio Salzo

MSc in Mathematics, Vision, Learning

October 2019 - September 2020

ENS Paris-Saclay, France
Thesis: *Convergence of the iterates generated by AdaGrad*
Supervisor: Edouard Pauwels

¹Marie Skłodowska-Curie Actions

MSc in Mathematical Sciences
African Institute for Mathematical Sciences, Senegal

August 2016 - February 2018

Maitrise in Applied Mathematics
Nazi Boni University, Burkina Faso

October 2014 - September 2015

BSc in Fundamental Mathematics
Nazi Boni University, Burkina Faso

October 2013 - September 2014

DEUG² in Maths, Physics, Informatics
Nazi Boni University, Burkina Faso

October 2008 - September 2010

AWARDS AND HONORS

TIRIS Junior Fellowship (<i>165.344 €</i>)	<i>2025</i>
Mastercard Foundation Scholarship	<i>2016</i>
Burkina Faso National Scholarship	<i>2008</i>

RESEARCH MOBILITIES/INTERSHIPS

Research secondment Worked separately with François Glineur (UCLouvain) and Medhi Madani (N-side) Belgium	<i>April 2023 - September 2023</i>
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Research secondment (online) Worked with Ion Necoara University Politehnica Bucharest, Romania	<i>November 2022 - February 2023</i>
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Research intern (mostly online, Covid19) Worked with Edouard Pauwels Paul Sabatier University, France	<i>April 2020 - October 2020</i>
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PUBLICATIONS

PREPRINTS

- [1] TRAORÉ, C., AND OCHS, P. (2025). Bregman Stochastic Proximal Point Algorithm with Variance Reduction. *arXiv preprint arXiv:2510.16655*.
- [2] RANDO, M., TRAORÉ, C., MOLINARI, C., ROSASCO, L., AND VILLA, S. (2025). A Structured Proximal Stochastic Variance Reduced Zeroth-order Algorithm. *arXiv preprint arXiv:2506.23758*.

²Diplôme d'Études Universitaires Générales

ARTICLES IN PEER-REVIEWED JOURNALS *(accepted or published)*

- [1] TRAORÉ, C., APIDOPOULOS, V., SALZO, S., AND VILLA, S. (2024). Variance reduction techniques for stochastic proximal point algorithms. *Journal of Optimization Theory and Application*, vol. 203, pp 1910-1939.
- [2] TRAORÉ, C., SALZO, S., AND VILLA, S. (2023). Convergence of an Asynchronous Block-Coordinate Forward-Backward Algorithm for Convex Composite Optimization. *Computational Optimization and Applications*, vol. 86(1), pp 303-344.
- [3] TRAORÉ, C., AND PAUWELS, E. (2021). Sequential convergence of AdaGrad algorithm for smooth convex optimization. *Operations Research Letters*, vol. 49(4), pp 452-458.

INVITED TALKS

International Conference on Continuous Optimization (ICCOPT 2025) *July 2025*
I canceled for personal issues

Session: Randomized optimization algorithms

Title: *Variance reduction for stochastic proximal point algorithms*

Los Angeles, United States

21th EUROpt Conference on Continuous Optimization *June 2024*

Session: Accelerated methods in modern optimization

Stream: Optimization for inverse problems and machine learning

Title: *Variance reduction techniques for stochastic proximal point algorithms*

Lund, Sweden

Journées annuelles 2023 du GDR MOA *October 2023*

Title: *Variance reduction techniques for stochastic proximal point algorithms*

Perpignan, France

20th EUROpt Workshop on Continuous Optimization *August 2023*

Session: Stochastic methods

Stream: First-order optimization methods

Title: *Asynchronous block coordinate Forward-Backward*

Budapest, Hungary

SIAM Conference on Optimization (OP23) *June 2023*

Mini Symposium on Randomized Methods for Linear Systems: Row-Action
and Coordinate Descent

Title: *Asynchronous block coordinate Forward-Backward*

Seattle, United States

Second Conference of Young Applied Mathematicians *September 2022*

Session: Machine Learning and Statistics

Title: *Asynchronous block coordinate Forward-Backward*

Arenzano, Italy

International Conference on Optimization and Decision Science *August 2022*

Session: Optimization for machine learning

Title: *Asynchronous block coordinate Forward-Backward*
Florence, Italy

SIAM Annual Meeting (AN22) (online)

July 2022

Mini Symposium on Algorithmic Advancements for Computing on
Distributed Systems

Title: *Asynchronous block coordinate Forward-Backward*
Pittsburgh, United States

ACADEMIC AND RESEARCH ACTIVITIES

TEACHING

MOP retreat, Saarland University

November 2024

1h:30 lecture on stochastic optimization and variance reduction techniques

Audience: PhD students, postdocs and professors

SCIENTIFIC EVENTS

EurOpt, Lund, Sweden

June 2024

Organized a stream: *Optimization for inverse problems and machine learning*

TraDE-OPT closing workshop, Sestri Levante, Italy

September 2024

Organizing committee member

REVIEWS *(since 2021)*

Journal of Machine Learning Research

SIAM Journal on Imaging Sciences

LANGUAGES

Dyula

Native

French

Native

English

Fluent

MISCELLANEOUS

Web developer

February 2018 - September 2019

Wutiko SAS, Senegal

Graduate intern

May 2017 - October 2017

Wutiko SAS, Senegal

Tempory mathematics teacher

September 2010 - June 2013

Several High Schools in Burkina Faso