Christopher Criscitiello

Email: christopher.criscitiello@epfl.ch
Website: ccriscitiello.github.io/personalwebsite/
Residence: Switzerland
Citizenship: USA

Education

EPFL (École Polytechnique Fédérale de Lausanne) — PhD — January 2021 – Present
PhD candidate in Applied Mathematics, advisor: Nicolas Boumal — *Lausanne, VD, Switzerland*

Princeton University — BA — Class of 2019
Bachelor's in Mathematics, Magna Cum Laude — *Princeton, NJ, USA*

Research

Research interests: Optimization, machine learning, geometry

Selected Publications/Papers

Synchronization on circles and spheres with nonlinear interactions – Criscitiello, Rebjock, McRae, Boumal
arXiv preprint, 2024

Curvature and complexity: Better lower bounds for geodesically convex optimization – Criscitiello, Boumal
Conference on Learning Theory (COLT), 2023

Negative curvature obstructs acceleration for strongly geodesically convex optimization, even with exact first-order oracles – Criscitiello, Boumal
Conference on Learning Theory (COLT), 2022

An accelerated first-order method for non-convex optimization on manifolds – Criscitiello, Boumal
Foundations of Computational Mathematics (FoCM), June 2022

Efficiently escaping saddle points on manifolds – Criscitiello, Boumal
Advances in Neural Information Processing Systems (NeurIPS), 2019

I recently started a research blog: **Downhill Blog.**

Work Experience

Quantitative Research Intern at Citadel Securities — July 2024 – September 2024
Citadel Securities — *London, UK*

Data Analyst at Rose AI — February 2020 – December 2020
Rose Technologies (rose.ai) and Black Snow Capital — *New York City, NY, USA*

Data Science Intern at Rose AI — November 2019 – January 2020
Rose Technologies (rose.ai) and Black Snow Capital — *New York City, NY, USA*

Awards

Best Paper for Young Researchers Prize, Int'l Conference on Continuous Optimization (ICCOPT'22)
For "Negative curvature obstructs acceleration for strongly geodesically convex optimization"

Shapiro Prize for Academic Excellence, Princeton University
Given to top 3 percent of undergraduate class.

Manfred Pyka Memorial Prize in Physics, Princeton University
"The Manfred Pyka Memorial Prize in Physics is given to outstanding undergraduates who have shown excellence in course work and promise in independent research"

Dean's award for excellence in teaching, EPFL

Reviewing, Teaching, Volunteer

Reviewed/reviewing for the following journals and conferences: SIAM Journal on Optimization (**SIOPT**), Journal of Machine Learning Research (**JMLR**), Neural Information Processing Systems (**NeurIPS**), Artificial Intelligence and Statistics (**AISTATS**), Algorithmic Learning Theory (**ALT**), IMA Journal of Numerical Analysis, Machine Learning (Springer), Optimization for Machine Learning Workshop (**OPT at NeurIPS**)

EPFL teaching assistant for: Optimization on manifolds, Analysis III, Analysis IV, linear algebra.
Princeton MathReach: Teaching math to high school students.

Skills

Programming Languages: Python, Java, C/C++, SQL, MATLAB, Julia, Mathematica
Experience with Pandas & PyTorch & TensorFlow, cleaning large data sets, training machine learning models.