

Nicolas Loizou

Contact Details

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Google Scholar : [Google Scholar Profile](#)

Research Interests

Large-Scale Optimization, Machine Learning, Randomized Algorithms,
Randomized Numerical Linear Algebra, Algorithmic Game Theory,
Distributed and Decentralized Algorithms, Federated Learning.

Academic Appointments

Assistant Professor, Johns Hopkins University, Jan. 2022 - present
Dep. of Applied Mathematics and Statistics & Mathematical Institute for Data Science
Secondary Appointments: Dep. of Computer Science & Dep. of Electrical and Computer Engineering
Institutes: MINDS, DSAI, ROSEI

IVADO Postdoctoral Research Fellow,
Mila - Quebec Artificial Intelligence Institute, Université de Montréal, Sept. 2019 - Dec. 2021
Hosts: Dr. Simon Lacoste-Julien and Dr. Ioannis Mitliagkas

Industry Appointments

Visiting Researcher, Vector Insitute, Toronto, May 2024 - present

Research Intern (AI), Meta, Fundamental AI Research (FAIR) Montreal, Aug.-Dec. 2018
Host: Dr. Michael Rabbat

Education

PhD in Optimization and Operational Research
School of Mathematics, University of Edinburgh, 2015 - 2019
Supervisor: Dr. Peter Richtárik

MSc Computing, Imperial College London, 2014-2015

BSc Mathematics, National and Kapodistrian University of Athens, 2010- 2014

Publications

I have published 27 papers in international journals and major peer-reviewed conferences. The machine learning conferences (ICML, NeurIPS, AISTATS, ICLR) have a low acceptance rate (typically below 25%) and are the primary conferences of high impact in machine learning and artificial intelligence research. I currently have 4 papers (ArXiv preprints) currently under submission in international journals and major peer-reviewed conferences.

Thesis

N. Loizou.

Randomized Iterative Methods for Linear Systems: Momentum, Inexactness and Gossip.

Ph.D. Dissertation, The University of Edinburgh, 2019

OR Society's Doctoral Award (runner-up) for the "Most Distinguished Body of Research leading to the Award of a Doctorate in the field of Operational Research" in the United Kingdom.

Journal Papers

T. Zheng, N. Loizou, P.You, E. Mallada

Dissipative Gradient Descent Ascent Method: A Control Theory Inspired Algorithm for Min-max Optimization

Accepted to IEEE Control Systems Letters, 2024

A. Khaled, O. Sebbouh, N. Loizou, R. M. Gower, P. Richtárik

Unified Analysis of Stochastic Gradient Methods for Composite Convex and Smooth Optimization

Journal of Optimization Theory and Applications (JOTA), 199(2), 499-540, 2023

R. D'Orazio, N. Loizou, I. Laradji, I. Mitliagkas

Stochastic Mirror Descent: Convergence Analysis and Adaptive Variants via the Mirror Stochastic Polyak Stepsize,

Transactions on Machine Learning Research, 2023

Z. Shi, N. Loizou, P. Richtárik, M. Takac

AI-SARAH: Adaptive and Implicit Stochastic Recursive Gradient Methods

Transactions on Machine Learning Research, 2023

N. Loizou, P. Richtárik.

Revisiting Randomized Gossip Algorithms: General Framework, Convergence Rates and Novel Block and Accelerated Protocols.

IEEE Transactions on Information Theory 67 (12), 8300 - 8324, 2021.

N. Loizou, P. Richtárik.

Convergence Analysis of Inexact Randomized Iterative Methods,

SIAM Journal on Scientific Computing 42 (6), A3979-A4016, 2020.

N. Loizou, P. Richtárik.

Momentum and Stochastic Momentum for Stochastic Gradient, Newton, Proximal Point and Subspace Descent Methods

Computational Optimization and Applications, 77 (3), 653-710, 2020. **COAP 2020 Best Paper Prize.**

Peer-reviewed Conference Papers

K. Emmanouilidis, R. Vidal, N. Loizou

Stochastic Extragradient with Random Reshuffling: Improved Convergence for Variational Inequalities
27th International Conference on Artificial Intelligence and Statistics (AISTATS 2024)

S. Zhang, S. Choudhury, S. U. Stich, N. Loizou

Communication-Efficient Gradient Descent-Ascent Methods for Distributed Variational Inequalities: Unified Analysis and Local Updates

11th International Conference on Learning Representations (ICLR 2024)

short version: Optimization for Machine Learning Workshop, NeurIPS 2022

S. Choudhury, E. Gorbunov, N. Loizou

Single-Call Stochastic Extragradient Methods for Structured Non-monotone Variational Inequalities: Improved Analysis under Weaker Conditions

Advances in Neural Information Processing Systems 37 (NeurIPS 2023)

S. Sokota, R. D'Orazio, J.Z. Kolter, N. Loizou, M. Lanctot, I. Mitliagkas, N. Brown, C. Kroer

A Unified Approach to Reinforcement Learning, Quantal Response Equilibria, and Two-Player Zero-Sum Games,

11th International Conference on Learning Representations (ICLR 2023)

short version: Deep Reinforcement Learning Workshop, NeurIPS 2022

A. Beznosikov, E. Gorbunov, H. Berard, N. Loizou

Stochastic Gradient Descent-Ascent: Unified Theory and New Efficient Methods,

26th International Conference on Artificial Intelligence and Statistics (AISTATS 2023),

short version: Optimization for Machine Learning Workshop, NeurIPS 2022

A. Orvieto, S. Lacoste-Julien, N. Loizou

Dynamics of SGD with Stochastic Polyak Stepsizes: Truly Adaptive Variants and Convergence to Exact Solution,

Advances in Neural Information Processing Systems 36 (NeurIPS 2022)

Eduard Gorbunov, Hugo Berard, Gauthier Gidel, Nicolas Loizou

Stochastic Extragradient: General Analysis and Improved Rates,

The 25th International Conference on Artificial Intelligence and Statistics (AISTATS 2022).

Eduard Gorbunov, Nicolas Loizou, Gauthier Gidel

Extragradient Method: $O(1/K)$ Last-Iterate Convergence for Monotone Variational Inequalities and Connections With Cocoercivity,

The 25th International Conference on Artificial Intelligence and Statistics (AISTATS 2022).

Chris Junchi Li, Yaodong Yu, Nicolas Loizou, Gauthier Gidel, Yi Ma, Nicolas Le Roux, Michael I Jordan

On the Convergence of Stochastic Extragradient for Bilinear Games with Restarted Iteration Averaging,

The 25th International Conference on Artificial Intelligence and Statistics (AISTATS 2022),

short version: Optimization for Machine Learning Workshop, NeurIPS 2021 (**Oral Presentation**)

Nicolas Loizou, Hugo Berard, Gauthier Gidel, Ioannis Mitliagkas, Simon Lacoste-Julien

Stochastic Gradient Descent-Ascent and Consensus Optimization for Smooth Games: Convergence Analysis under Expected Co-coercivity

Advances in Neural Information Processing Systems 35 (NeurIPS 2021)

R. M. Gower, O. Sebbouh, N. Loizou

SGD for Structured Nonconvex Functions: Learning rates, Minibatching and Interpolation

The 24th International Conference on Artificial Intelligence and Statistics (AISTATS 2021),

short version: Optimization for Machine Learning Workshop, NeurIPS 2020

N. Loizou, S. Vaswani, I. Laradji, S. Lacoste-Julien

Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence

The 24th International Conference on Artificial Intelligence and Statistics (AISTATS 2021)

short version: Optimization for Machine Learning Workshop, NeurIPS 2020 (**Spotlight Talk**)

N. Loizou, H. Berard, A. Jolicoeur-Martineau, P. Vincent, S. Lacoste-Julien, I. Mitliagkas

Stochastic Hamiltonian Gradient Methods for Smooth Games

Proceedings of the 37th International Conference on Machine Learning (ICML), pages 6370–6381, 2020.

A Koloskova, N Loizou, S Boreiri, M Jaggi, S. U. Stich

A Unified Theory of Decentralized SGD with Changing Topology and Local Updates

Proceedings of the 36th International Conference on Machine Learning (ICML), pages 5381–5393, 2020.

R. M. Gower, N. Loizou, X. Qian, A. Sailanbayev, E. Shulgin, P. Richtárik.

SGD: General Analysis and Improved Rates,

Proceedings of the 36th International Conference on Machine Learning (ICML), pages 5200–5209, 2019.

M. Assran, N. Loizou, N. Ballas, M. Rabbat.

Stochastic Gradient Push for Distributed Deep Learning,

Proceedings of the 36th International Conference on Machine Learning (ICML), pages 344–353, 2019.

short version: Systems for ML workshop, NeurIPS 2018

N. Loizou, M. Rabbat, and P. Richtárik.

Provably accelerated randomized gossip algorithms.

International Conference on Acoustics, Speech and Signal Processing (ICASSP), pages 7505–7509, 2019.

N. Loizou, P. Richtárik.

Accelerated gossip via stochastic heavy ball method.

Annual Allerton Conference on Communication, Control, and Computing (Allerton), pages 927–934, 2018.

N. Loizou, P. Richtárik.

A New Perspective on Randomized Gossip Algorithms,

IEEE Global Conference on Signal and Information Processing (GlobalSIP), pages 440–444, 2016.

N. Loizou.

Distributionally Robust Games with Risk-Averse Players,

Proceedings of 5th International Conference on Operations Research and Enterprise Systems (ICORES), pages 186–196, 2016.

Preprints

D. Oikonomou, N. Loizou

Stochastic Polyak Step-sizes and Momentum: Convergence Guarantees and Practical Performance

Preprint 2024 (Under submission)

S Choudhury, N Tupitsa, N Loizou, S Horvath, M Takac, E Gorbunov
Remove that Square Root: A New Efficient Scale-Invariant Version of AdaGrad
 arXiv preprint arXiv:2403.02648, March 2024 (Under submission)

S. Mukherjee, N. Loizou, S. U. Stich
Locally Adaptive Federated Learning
 arXiv preprint arXiv:2307.06306, July 2023 (Under submission)

Peer-reviewed Workshop Papers / Others

Siqi Zhang, Nicolas Loizou
ProxSkip for Stochastic Variational Inequalities: A Federated Learning Algorithm for Provable Communication Acceleration
 Optimization for Machine Learning Workshop, NeurIPS 2022

R. D’Orazio, N. Loizou, I. H. Laradji, I. Mitliagkas
On Stochastic Mirror Descent: Convergence Analysis and Adaptive Variants
 ICML 2021 - Workshop: Beyond first-order methods in ML systems

F. Hanzely, J. Konečný, N. Loizou, P. Richtárik, D. Grishchenko.
A Privacy Preserving Randomized Gossip Algorithm via Controlled Noise Insertion,
 NeurIPS 2018 - Privacy Preserving Machine Learning Workshop

N. Loizou, P. Richtárik.
Linearly convergent stochastic heavy ball method for minimizing generalization error,
 NeurIPS 2017 - Optimization for Machine Learning Workshop

F. Hanzely, J. Konečný, N. Loizou, P. Richtárik, D. Grishchenko
Privacy Preserving Randomized Gossip Algorithms
 arXiv preprint arXiv:1706.07636, June 2017

N. Loizou.
Distributionally Robust Game Theory,
 MSc Thesis, Imperial College London, 2015.

Mentoring and Advising

- **Postdocs**
 - TaeHo Yoon (Incoming 2024)
 - Siqi Zhang (July 2022 - present)
- **PhD Students:**
 - Dimitrios Oikonomou (Sept. 2023 - present)
 - Konstantinos Emmanouilidis (Sept. 2022 - present)
 - Sayantan Choudhury (Sept. 2022 - present)

- **MSE Students:**

- Mengtong Xu (June 2022 - Dec. 2022)
Next: PhD Student, Department of Computer Science and Technology, Tsinghua University.
- Yichuan Wang (June 2022 - Dec. 2022)
Next: PhD Student, Department of Electrical and Computer Engineering, Boston University.
- Zhichao Jia (June 2022 - Dec. 2022)
Next: PhD Student, School of Industrial and Systems Engineering, Georgia Tech.

- **Research Interns:**

- Eduard Gorbunov (June 2021 - Sept. 2021) from MIPT
- Antonio Orvieto (June 2021 - Sept. 2021) from ETH Zurich

- **High-school Students:**

- Christopher Davis (Summer 2024)

Achievements & Awards

- **2024:**

- JHU Discovery Award
- Accelerated Translational Incubator Pilot Program (co-PI)

- **2023:**

- CISCO Research Award (2023-2025)
Topic: Multi-Player Federated Learning: Efficient Algorithms and Applications

- **2022:**

- JHU Bridge Grant (\$50,000)
- Highlighted Reviewer of ICLR 2022

- **2021:**

- **COAP 2020 Best paper prize:** Our paper “Momentum and stochastic momentum for stochastic gradient, Newton, proximal point and subspace descent methods” published in Computational Optimization and Application was voted by the editorial board as the best paper appearing in the journal in 2020.

- **2020:**

- 2019 **OR Society’s Doctoral Award** (Runner-up) for the “Most Distinguished Body of Research leading to the Award of a Doctorate in the field of Operational Research” in the UK.
- ICML 2020 Top Reviewer

- **2019:**

- **IVADO Fellow Postdoctoral Scholarship:** 270000\$ scholarship + 45000\$ research fund + 10000\$ other expenses, fully funded by IVADO, 2020-2023. (Grant ended once I started at JHU)
- **ICML Travel Award:** Travel support for attending ICML 2019 (Los Angeles).

- Travel award from **Amazon Scalable Machine Learning, Berlin** for attending International Conference on Continuous Optimization (ICCOPT) , Berlin, Germany.
- **2018:**
 - **Edinburgh University Travel Award** for visiting Optimization and Machine Learning Research Group, Lehigh University, 10 Apr – 15 May 2018.
 - Travel award from **Amazon Scalable Machine Learning, Berlin** for attending 23rd International Symposium on Mathematical Programming , Bordeaux, France
 - Travel award from **Amazon Scalable Machine Learning, Berlin** for attending DIMACS/TRIPODS/MOPTA, Lehigh University, Bethlehem, PA, USA
- **2017:**
 - **Grant, Edinburgh Research and Development Fund** (cover my expenses for the attendance of Conference on Computational Management Science, Bergamo Italy)
 - Travel award from **Laura Wisewell Travel Fund** for attending SIAM Conference on Optimization
 - **SIAM Student Travel Award** for attending SIAM Conference on Optimization
- **2016:**
 - **IEEE Signal Processing Society Travel Grant** for attending GlobalSip
 - **PCMI Scholarship.** Cover almost all of my expenses for the attendance of the PCMI Summer School in Utah "Mathematics of Data"
 - Scholarship from the **A.G. Leventis Foundation** for PhD studies at University of Edinburgh (2016–2017)
 - **Grant, Edinburgh Research and Development Fund** (cover my expenses for the attendance of Machine Learning Summer School in Cadiz, Spain)
 - **ICORES Travel Award**
- **2015:**
 - Travel award from **Laura Wisewell Travel Fund** for attending International Conference on Operations Research and Enterprise Systems in Rome
 - Scholarship from **A.G. Leventis Foundation** for PhD studies at University of Edinburgh (2015–2016)
 - **Principal's Career Development Scholarship:** Highly competitive PhD scholarship awarded to several students across University of Edinburgh

Presentations (Upcoming and Past)

- 25 Nov 2024: **Departmental Colloquium, Rice CMOR**, Rice University
- 14 Nov 2024: **Princeton Optimization Seminar**, Princeton University
- 30 Oct 2024: **SILO Seminar**, University of Wisconsin, Madison
- 21–26 Jul 2024: **25th International Symposium on Mathematical Programming**, Montreal, Canada.
- 18 June 2024: **Vector Institute AI Seminar**, Vector Institute, Toronto, Canada.

- 08-11 May 2024: **ICLR 2024**, Vienna, Austria.
- 07 May 2024: **Computational Optimization seminar**, Imperial College London, UK
- 02-04 May 2024: **AISTATS 2024**, València, Spain.
- 22-24 Mar 2024: **INFORMS Optimization Society (IOS) Conference**, Rice University, Texas, USA.
- 10-16 Dec 2023: **NeurIPS 2022**, New Orleans, USA
- 20 Oct 2023: **Continuous Optimization Seminar**, University of Waterloo, Waterloo, Canada.
- 21 Sept 2023: **Flatiron Institute Seminar**, New York City, USA.
- 29 Aug 2023: **JHU ECE Seminar**, Baltimore, Maryland, USA.
- 10-14 Jul 2023: **14th International conference on Sampling Theory and Applications (SampTA 2023)**, Yale University, U.S.
- 31 May-03 Jun 2023: **SIAM Conference on Optimization (OP23)**, Seattle, Washington, U.S.
- 25-27 Apr 2023: **AISTATS 2023**, València, Spain
- 22-24 Mar 2023: **57th Annual Conference on Information Science and Systems**, Baltimore, USA
- 22-24 Feb 2023: **Coordinated Science Laboratory Student Conference (CSLSC)**, The University of Illinois at Urbana-Champaign, USA
- 28 Nov-03 Dec 2022: **NeurIPS 2022**, New Orleans, USA
title: "Dynamics of SGD with Stochastic Polyak Stepsizes: Truly Adaptive Variants and Convergence to Exact Solution"
- 25-28 Jul 2022: **International Conference on Continuous Optimization (ICCOPT) 2022**, Lehigh University, Bethlehem, Pennsylvania.
title: "Stochastic Gradient Descent-Ascent: Unified Theory and New Efficient Methods"
- 08 March 2022: **MINDS seminar**, Johns Hopkins University, Baltimore, US
title: "Stochastic Iterative Methods for Smooth Games: Practical Variants and Convergence Guarantees"
- 06-14 Dec 2021: **NeurIPS 2021**, (virtual conference)
title: "Stochastic Gradient Descent-Ascent and Consensus Optimization for Smooth Games: Convergence Analysis under Expected Co-coercivity"
- 24-27 Oct 2021: **INFORMS annual meeting**, (virtual conference)
title: "Stochastic Gradient Descent-Ascent and Consensus Optimization for Smooth Games: Convergence Analysis under Expected Co-coercivity"
- 20-23 Jul 2021: **Siam Conference On Optimization**, (virtual conference)
title: "Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence"
- 07-09 Jul 2021: **18th International Workshop on Continuous Optimization**, (virtual conference)
title: "Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence"
- 28 April 2021: **Computer Science department, Rice University**.
title: "Large-Scale Optimization for Machine Learning and Data Science"

- 13-15 Apr 2021: **24th International Conference on Artificial Intelligence and Statistics (AISTATS)**
title: "Stochastic Polyak step-size for SGD: An adaptive learning rate for fast convergence"
title: "SGD for structured nonconvex functions: Learning rates, minibatching and interpolation"
- 23 Feb 2021: **University of British Columbia (Okanagan campus).**
title: "Large-Scale Optimization for Machine Learning and Data Science"
- 16 Feb 2021: **ECE Rising Star Seminar Series, University of Wisconsin-Madison.**
title: "Large-Scale Optimization for Machine Learning and Data Science"
- 28 Jan 2021: **MINDS 2021 Winter Symposium, Johns Hopkins University.**
title: "Large-Scale Optimization for Machine Learning and Data Science"
- 11 Dec 2020: **Optimization for Machine Learning Workshop, NeurIPS, Spotlight Talk.**
title: "Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence"
- 02 Dec 2020: **Montreal Machine Learning and Optimization (MTL MLOpt) Seminar.**
title: "SGD for Modern Machine Learning: Practical Variants and Convergence Guarantees"
- 30 Nov 2020: **Smooth Games - Reading Group EPFL, Virtual Talk.**
title: "Stochastic Hamiltonian Gradient Methods for Smooth Games"
- 07-13 Nov 2020: **INFORMS annual meeting, Virtual Conference.**
title: "Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence"
- 12-18 Jul 2020: **37th International Conference on Machine Learning (ICML), Virtual Conference**
title: "Stochastic Hamiltonian Gradient Methods for Smooth Games"
title: "A Unified Theory of Decentralized SGD with Changing Topology and Local Updates"
- 06-09 Jul 2020: **SIAM Conference on Imaging Science, Virtual Conference**
title: "Revisiting Randomized Gossip Algorithms: A Novel Framework through Kaczmarz-type Methods"
- 19 March 2020: **54th Annual Conference on Information Sciences and Systems (CISS), Virtual Conference.**
title: "Revisiting Randomized Gossip Algorithms: A Novel Framework through Kaczmarz-type Methods"
- 06 Aug 2019: **International Conference on Continuous Optimization (ICCOPT) , Berlin, Germany**
title: "Stochastic Gradient Push for Distributed Deep Learning"
- 11 Jun 2019: **36th International Conference on Machine Learning (ICML) , Los Angeles, USA**
title: "SGD: General Analysis and Improved Rates"
- 14 May 2019: **IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brighton, United Kingdom**
title: "Provably Accelerated Randomized Gossip Algorithms"
- 28 Apr 2019: **All Hands Meetings on Big Data Optimization , KAUST, Saudi Arabia**
title: "SGD: General Analysis and Improved Rates"
- 8 Dec 2018: **Privacy Preserving Machine Learning Workshop, NIPS 2018 , Montreal , Canada**
title: "A Privacy Preserving Randomized Gossip Algorithm via Controlled Noise Insertion"
- 16 Nov 2018: **MILA Tea Talks , University of Montreal , Montreal , Canada**
title: "Stochastic Heavy Ball Method, Average Consensus and Distributed Deep Learning"

- 13 Nov 2018: **Mathematics in Machine Learning Seminar** , McGill University, Montreal , Canada
title: "Momentum and stochastic momentum for stochastic gradient, Newton, proximal point and subspace descent methods"
- 04 Oct 2018: **56th Annual Allerton Conference on Communication, Control, and Computing (Allerton)** , Monticello, IL, USA
title: "Accelerated Gossip via Stochastic Heavy Ball Method"
- 04 Sept 2018: **Facebook Montreal Research Seminar** , Montreal , Canada
title: "Randomized Optimization Methods for Large Scale Problems"
- 13-17 Aug 2018: **DIMACS/TRIPODS/MOPTA** , Lehigh University, Bethlehem, PA, USA
title: "Revisiting the Foundations of Randomized Gossip Algorithms"
- 1-6 Jul 2018: **International Symposium on Mathematical Programming** , Bordeaux, France (**invited**)
title: "Convergence Analysis of Inexact Randomized Iterative Methods"
- 11 Apr 2018: **OptML group Seminar** , Lehigh University, Bethlehem, PA, USA
title: "Momentum and Stochastic Momentum for Stochastic Gradient, Newton, Proximal Point and Subspace Descent Methods"
- 05 Feb 2018, **Optimization and Big Data 2018, KAUST**, Thuwal, Saudi Arabia,
talk: "Momentum and Stochastic Momentum for Stochastic Gradient, Newton, Proximal Point and Subspace Descent Methods"
- 8 Dec 2017, **NIPS Workshop on Optimization for Machine Learning**, Los Angeles, USA
poster: "Linearly convergent stochastic heavy ball method for minimizing generalization error"
- 05 Oct 2017, **RISELab, Department of Computer Science, UC Berkeley**, California, USA
talk: "Stochastic and Doubly Stochastic Dual Heavy Ball Methods for Quadratic Optimization with Low-Rank Hessian"
- 31 May 2017, **Conference on Computational Management Science**, Bergamo, Italy, (**invited**)
talk: "Distributionally Robust Games with Risk-Averse Players "
- 22 May 2017, **SIAM Conference on Optimization**, Vancouver, British Columbia, Canada (**invited**)
talk: "Stochastic Heavy Ball Method for Solving Linear Systems"
- 12 Apr 2017, **KAUST Research Conference 2017: Visual Computing - Modeling and Reconstruction**, KAUST, Saudi Arabia
poster: "A New Perspective on Randomized Gossip Algorithm"
- 12 Jan 2017, **SIAM UKIE Annual Meeting 2017**, Glasgow, UK
poster: "Randomized Gossip Algorithms: Complexity, Duality and New Variants"
- 09 Dec 2016, **IEEE Global Conference on Signal and Information Processing (GlobalSIP)**, Washington D.C, USA
talk: "A new Perspective on Randomized Gossip Algorithms"
- 12 Oct 2016, **Data Science Research Day 2016**, Edinburgh, UK
poster: "Randomized Gossip Algorithms: Complexity, Duality and New Variants"
- 07 Sept 2016, **5th IMA Conference on Numerical Linear Algebra and Optimisation**, Birmingham, UK, (**organizer of 2 mini-symposia**)
talk: "Randomized Gossip Algorithms: Complexity, Duality and New Variants"

- 01 Aug 2016, **Young Researchers in Mathematics Conference (YRM)**, Saint Andrews, UK
talk: "A new Perspective on Randomized Gossip Algorithms"
- 26 May 2016, **3DT and Friends Student Conference**, Edinburgh, UK
poster: "Randomized Gossip Algorithms: New Insights"
- 16 May 2016, **Machine Learning Summer School (MLSS)**, Cádiz, Spain
poster: "Randomized Gossip Algorithms: New Insights"
- 23 Feb 2016: **5th International Conference on Operational Research and Enterprise Systems (ICORES)**, Rome Italy
talk: "Distributionally Robust Games with Risk Averse Players"

Teaching¹

- **Johns Hopkins University:**
Fall 2024: Iterative Algorithms in Machine Learning: Theory and Applications* (EN.553.767)
Fall 2024: Optimization for Data Science* (EN.553.662)
Spring 2023: Iterative Algorithms in Machine Learning: Theory and Applications* (EN.553.767)
Fall 2023: Optimization for Data Science* (EN.553.662)
Spring 2023: Iterative Algorithms in Machine Learning: Theory and Applications* (EN.553.767)
Fall 2022: Large-Scale Optimization for Data Science* (EN.553.669)
- **The University of Edinburgh:**
Tutor for the courses:
Spring 2018: Modern Optimization Methods for Big Data Problems.
Spring 2017: Modern Optimization Methods for Big Data Problems, Optimization in Finance.
Autumn 2016: Fundamentals of optimization, Simulation, Probability.
Spring 2016: Proofs and Problem Solving.
- **Other Teaching Experience:**
Summers 2013-2020: Lifeguard/First-Aid trainer for adult classes (District administration Larnaca, Cyprus).

Research Visits

- 10 Apr – 15 May 2018,
Optimization and Machine Learning Research Group, Lehigh University (Dr. Martin Takac)
- 15 Mar – 5 May 2017, 01 Feb – 15 Mar 2018, 07 April – 15 May 2019
Visual Computing Center, KAUST, Thuwal, KSA (Dr. Peter Richtarik)
- 20–30 of July 2016,
Machine Learning and Optimization Group, Microsoft Research, Seattle, USA. (Dr. Lin Xiao)

¹I have proposed and developed from scratch courses marked with an asterisk. I was a TA (teaching assistant / tutor) for all other courses.

Professional Service

- **Organization and Chairing:**

- **Conference Organization Committee:** DeepMath Conference 2023 and 2024
- **Mini-symposium Organizer:** “Adaptive, Line-Search, and Parameter-Free Stochastic Optimization”. International Symposium on Mathematical Programming, Montreal, Canada, July 21-26, 2024
- **Mini-symposium Organizer:** “Recent Advancements in Optimization Methods for Machine Learning”. SIAM Conference on Optimization, Seattle, Washington, US May 31-June 03, 2023
- **Mini-symposium Organizer:** “Optimization Methods in Machine Learning”. 57th Annual Conference on Information Science and Systems (CISS), Baltimore, USA, March 22-24, 2023
- **Cluster Co-Chair,** “Optimization for Data Science and Machine Learning” at the International Conference on Continuous Optimization (ICCOPT) 2022, Lehigh University, Bethlehem, Pennsylvania (with S. Stich).
- **Mini-symposium Organizer:** “Recent Advancements in Optimization Methods for Machine Learning”. SIAM Conference on Optimization, Virtual Conference, 20-23 Jul 2021
- **Session Chair:** “Stochastic Optimization Algorithms”. INFORMS Annual Meeting, Phoenix AZ, USA, November 2018
- **Mini-symposium Organizer:** “Optimization Methods in Machine Learning”. 5th IMA Conference on Numerical Linear Algebra and Optimisation, University of Birmingham, UK, September 2016
- **Mini-symposium Organizer:** “Randomized Numerical Linear Algebra”. 5th IMA Conference on Numerical Linear Algebra and Optimisation, University of Birmingham, UK, September 2016
- **Seminar Organizer:** “All Hands Meetings on Big Data Optimization” The University of Edinburgh, Scotland, 2015-2017

- **Area Chair for:**

International Conference on Machine Learning (ICML): 2024

- **Reviewer for:**

Journals:	<i>Mathematical Programming,</i> <i>SIAM Journal on Optimization (SIOPT)</i> <i>Journal of Machine Learning Research (JMLR)</i> <i>European Journal of Operational Research,</i> <i>Numerical Algorithms,</i> <i>Numerical Linear Algebra with Applications,</i> <i>IEEE Transactions on Signal and Information Processing over Networks,</i> <i>SIAM Journal on Mathematics of Data Science (SIMODS),</i>
Conferences:	<i>International Conference on Machine Learning (ICML): 2019-present</i> <i>Annual Conference on Neural Information Processing Systems (NeurIPS): 2020-present</i> <i>International Conference on Learning Representations (ICLR): 2019-present</i>
Workshops:	<i>Smooth Games Optimization and Machine Learning Workshop, NeurIPS 2019</i> <i>Optimization for Machine Learning Workshop, NeurIPS: 2020-present</i>

- **Service at Johns Hopkins**

- AI-X Foundry Website Committee (Chair)
- Organizer of MINDS Seminar, 2023-2024
- AMS Communications & Marketing Committee 2022-2024
- MSE in Data Science Admission Committee 2022-2024
- Data Science Postdoctoral Fellows Search Committee 2022-2023
- MINDS Weekly Seminar (Main organizer): 2023-2025
- Graduate Board Oral Examination:
 - * Wilson Gregory (AMS), 2024
 - * Mao Hong (AMS), 2023
 - * Ning Liu (AMS), 2023
 - * Tianqi Zheng (ECE), 2023
- PhD Thesis Committee Member:
 - * Mao Hong (AMS), 2024
 - * Tianqi Zheng (ECE), 2024

Skills and interests

- **Computer Skills:**

- Operating systems: Microsoft Windows, Linux, Mac OSX
- Programming languages: Julia, Python, Matlab, \LaTeX
- Deep Learning: PyTorch
- Optimization Software: Yalmip, CVX

- **Interests:**

- Swimming: Avid swimmer, competing in countless Pancyprrian competitions and gaining numerous medals.
- Music, film, reading and traveling.
- Member of: SIAM, INFORMS, MOS (Mathematical Optimization Society)

- **Languages:**

- Greek (native), English (fluent)