

Nicolas Loizou

Contact Details

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Fields of Interests

Optimization, Big Data Optimization, Convex Analysis,
Randomized Numerical Linear Algebra, Randomized Algorithms,
Machine Learning, Data Science

Education

University of Edinburgh, School of Mathematics
PhD in Operational Research and Optimization, 2015- present

- *Supervisors:* Dr. Peter Richtarik and Dr. Ilias Diakonikolas

Imperial College London
MSc in Computing (Computational Management Science), 2014-2015

- *Main courses:* Computational Finance, Computing for Optimal Decisions, Operations Research, Simulation and Modeling, Complex Systems, Intelligent Data Analysis and Probabilistic Inference, Machine Learning, Introduction to Bioinformatics, Graphics.
- *MSc Thesis:* "Distributionally Robust Game Theory" with Distinction 83%
- *Supervisors:* Dr. Wolfram Wiesemann and Dr. Panos Parpas

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

- Final overall average 8.79/10 (upper 1 % of 350 graduating students).
- *Specialization:* Applied Mathematics (Statistics and Operational Research).
- *Main Courses:* Probability Theory (10), Real Analysis (9), Linear Algebra (10), Combinatorics (10), Informatics (10), Numerical Linear Algebra (10), Matrix Theory and Applications (9), Operational research (10), Game Theory and Applications (9), Stochastic Processes (9), Statistics (8).
- Strong Computer Science Component (Certificate)

Publications

N. Loizou and P. Richtárik. **Accelerated Methods for Solving Linear Systems** (in Progress)

N. Loizou and P. Richtárik. **Randomized Gossip Algorithms: Complexity, Duality and New Variants** (in Progress)

N. Loizou and P. Richtárik. **A New Perspective on Randomized Gossip Algorithms**, To appear in proceedings of the 4th IEEE Global Conference on Signal and Information Processing (GlobalSIP), 2016

N. Loizou : **Distributionally Robust Games with Risk-Averse Players**, In Proceedings of 5th International Conference on Operations Research and Enterprise Systems, 186-196, 2016

Talks (Upcoming and Past)

- 22 May 2017, **SIAM Conference on Optimization**, Vancouver, British Columbia, Canada (**invited**)
talk: "Stochastic Heavy Ball Method for Solving Linear Systems"
- 9 Dec 2016, **IEEE Global Conference on Signal and Information Processing (GlobalSIP)**, Washington D.C, USA
talk: "A new Perspective on Randomized Gossip Algorithms"
- 10 Oct 2016: **All Hands Meeting on Big data Optimization**, Edinburgh, UK
talk: "Convergence Rates for Greedy Kaczmarz Algorithms, and Faster Randomized Kaczmarz Rules Using the Orthogonality Graph "
- 7 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"
- 1-4 Aug 2016, **Young Researchers in Mathematics Conference (YRM)**, Saint Andrews, UK
talk: "A new Perspective on Randomized Gossip Algorithms"
- 10 Jul 2016, **PCMI Summer School: "The Mathematics of Data"**, Park City, Utah, USA
talk: "Stochastic Dual Accent and Randomized Gossip Algorithms"
- 22 Mar 2016: **All Hands Meeting on Big data Optimization**, Edinburgh, UK
talk: "Second order stochastic optimization in linear time"
- 23 Feb 2016: **5th International Conference on Operational Research and Enterprise Systems (ICORES)**, Rome Italy
talk: "Distributionally Robust Games with Risk Averse Players"
- 2 Feb 2016: **All Hands Meeting on Big data Optimization**, Edinburgh, UK
talk: "Randomized Gossip Algorithms"
- 3 Nov 2015: **All Hands Meeting on Big data Optimization**, Edinburgh, UK
talk: "Stochastic gradient descent, weighted sampling and the randomized Kaczmarz algorithm"

Posters

- 12 Jan 2017, **SIAM UKIE Annual Meeting 2017**, Glasgow, UK
poster: "Randomized Gossip Algorithms: Complexity, Duality and New Variants"

- 12 Oct 2016, **Data Science Research Day 2016**, Edinburgh, UK
poster: "Randomized Gossip Algorithms: Complexity, Duality and New Variants"
- 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"

Attendance at Workshops, Seminars and Conferences

- **Workshop on Computational Statistics and Machine Learning**, 31 August- 1 September 2016, Edinburgh, UK
- **Microsoft Research Theory Group Seminar**, 27 July, Seattle, USA
- **Computational Optimization in Action, ICMS workshop**, 17 June 2016, Edinburgh, UK
- **8th International Conference on Agents and Artificial Intelligence (ICAART)**, 24–26 February 2016, Rome, Italy
- **5th International Conference on Pattern Recognition Applications and Methods (ICPRAM)**, 24–26 February 2016, Rome, Italy
- **Mathematical Aspects of Big Data: a joint meeting of the LMS and the EMS**, 10–11 December 2015, Edinburgh, UK
- **Theoretical and Computational Approaches to Large Scale Inverse Problems**, Alan Turing Institute Scoping Workshop, 2–4 December 2015, Edinburgh, UK
- **Distributed Machine Learning and Optimization**, Alan Turing Institute Scoping Workshop, 25–27 November 2015, Edinburgh, UK
- **Data Science Research Day**, 14 October 2015, Edinburgh, UK
- **17th British-French-German Conference in Optimisation**, 15-17 June 2015, London UK
- **30th Greek National Mathematics Conference: Mathematics in education, technology and society**, 2013 Karditsa, Greece
- **28th Greek National mathematics Conference: Mathematical Modelling - Applications in science and technology**, 2011 Athens, Greece

Summer Schools and Other Training for PhD Students

- **Graduate Summer School 2016: The Mathematics of Data**, 30 June – 20 July 2016, Utah, USA (20 % acceptance rate)
- **Convex Optimization; NATCOR Course**, 13–17 June 2016, Edinburgh, UK
- **Machine Learning Summer School (MLSS)**, 11–21 May 2016, Cadiz, Spain
I have been accepted to be one of the 141 participants of this summer school from 461 applicants (30% acceptance rate)
- **1st Year Training Courses:**
Foundations of Optimization (Reading Course), Nonlinear Optimization, Modern Optimization Methods for Big Data Problems, Introduction to Research in Data Science (School of Informatics)

Achievements, Awards and Scholarships

- **2017:**
 - **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** (partially 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
- **2014:**
 - **MSc Full Scholarship from Imperial College London Department of Computing** (Scholarships are awarded on academic merit to outstanding applicants.)
 - Scholarship from **A.G. Leventis Foundation** for MSc studies at Imperial College (2014-2015)
- **Before 2014:**
 - Student with Higher grades and specialization in Statistics and Operations Research (National and Kapodistrian University of Athens)
 - Awards for academic excellence in years 2002-2008
 - Prizes for the achievement of the best grades in mathematics in the third grade of Lyceum. 2008

Teaching

Tutor for the courses:

Proofs and Problem Solving (Spring 2016),

Fundamentals of optimization (Autumn 2016), Simulation (Autumn 2016), Probability (Autumn 2016)

Modern Optimization Methods for Big Data Problems (Spring 2017), Optimization in Finance(Spring 2017)

Others

- Professional Service:
 - Reviewer for *European Journal of Operational Research*
- Research Visit:
 - 20-30 of July, *Machine Learning and Optimization Group, Microsoft Research, Seattle, USA.* (Dr. Lin Xiao)

Work experience

District administration Larnaca - Lifeguard, summers of 2010- 2014

- Swimming and first aid training between 1999 and 2014 and achievement of multiple lifeguard qualifications. Recently qualified as a lifeguard trainer.
- Responsible for a team of 14 lifeguards at the most popular beach in Larnaca - Makenzy beach. This requires the utmost concentration on my part, as well as the coordination of the team so as to ensure the safety of the general public.
- The position also requires swift decision making and calmness when facing dangerous situations, which has enhanced my problem-solving ability.

Futurekids Larnaca (Private Tutorial Centre)- Teacher, summer 2010- 2013

- Part-time employment in teaching mathematics and computing to children with learning difficulties.
- Challenging position, in that I have to adapt both the content and the structure of my classes according to the ability of the students

Cypriot National Guard - Second Lieutenant, 2008 - 2010

- Selected through a competitive nationwide IQ and physical exams as part of mandatory military service.
- Underwent four months of intensive training in leadership in Nea Peramos Military School, Athens, Greece.
- Served remainder of two years as a Second Lieutenant in Artillery Battalion.
- Acted as commanding officer of a platoon of thirty soldiers.

Skills and interests

- **Computer Skills:**
 - Operating systems: Microsoft Windows, Linux, Mac OSX
 - Programming languages: JAVA, Matlab, Julia, L^AT_EX
 - Optimization Software: Yalmip, CVX
- **Interests:**
 - Swimming: Avid swimmer, competing in countless Pancyprian competitions and gaining numerous medals.
 - Music, film, reading and traveling.
 - Active member of "Environmental Movement Larnakas".
 - Active member of Edinburgh SIAM Student Chapter
- **Languages:**
 - Greek (native)
 - English (fluent)