

Filip Hanzely

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EDUCATION

- Ph.D. Applied Mathematics and Computational Science** Aug '17 – present
King Abdullah University of Science and Technology (KAUST), KSA
Topic: Randomized algorithms for big data optimization
Supervisor: Peter Richtárik
- M.Sc. by Research with Distinction, Mathematics and Statistics**¹ Sep '16 – May '17
University of Edinburgh, UK
Thesis: Randomized algorithms for minimizing relatively smooth functions
1st supervisor: Peter Richtárik, 2nd supervisor: Lukasz Szpruch
- Bc. in Economic and Financial Mathematics** Sep '13 – June '16
Comenius University, Bratislava, Slovakia
Thesis: Analysis of causal relationships in reconstructed phase space
Supervisor: Anna Krakovská

PUBLICATIONS

- Accelerated Relative Gradient Descent**
Filip Hanzely, Peter Richtárik, Lin Xiao 2018
Near completion
- SEGA: Variance Reduction via Gradient Sketching**
Filip Hanzely, Konstantin Mishchenko, Peter Richtárik 2018
Submitted
- Accelerated Coordinate Descent with Arbitrary Sampling and Best Rates for Minibatches**
Filip Hanzely, Peter Richtárik 2018
Submitted
- A Nonconvex Projection Method for Robust PCA**
Aritra Dutta, Filip Hanzely, Peter Richtárik 2018
ArXiv:1805.07962
- Accelerated stochastic matrix inversion: general theory and speeding up BFGS rules for faster second-order optimization**
Robert Gower, Filip Hanzely, Sebastian Stich, Peter Richtárik 2018
ArXiv:1802.04079
- Fastest Rates for Stochastic Mirror Descent**
Filip Hanzely, Peter Richtárik 2018
ArXiv:1803.07374
- Privacy Preserving Randomized Gossip Algorithms**
Filip Hanzely, Jakub Konečný, Nicolas Loizou, Peter Richtárik, Dmitry Grischenko 2017
ArXiv:1706.07636
- Testing for Causality in Reconstructed State Spaces by Optimized Mixed Prediction Method**
Anna Krakovská, Filip Hanzely 2016
Physical Review E 94 (5), 052203

AWARDS

- #3, WEP poster competition** 2018

¹It started off as PhD, however it was changed to M.Sc. as I decided to move to KAUST after first year with my advisor Peter Richtárik

Third place on a poster competition during Winter Enrichment Program (KAUST).

Dean's Award

2017 – present

Awarded to a few best incoming PhD students at KAUST

KAUST Fellowship

2017 – present

A generous fellowship provided for PhD students at KAUST

EPSRC CASE Award², £93,333/3.5 years

2016 – 2017

Industrial PhD scholarship funded by EPSRC and Amazon

AN70 Travel Grant, CAD\$750

2017

Travel support for attending Workshop on Modern Convex Optimization and Applications: AN70, Toronto

PMPML Travel Grant, £600

2016

Travel support for attending NIPS conference, Barcelona

Academic Praise

2015

A praise awarded by Dean of Comenius University; it is received by 2-3 selected students from each school of Comenius University every year

Second Prize (102th place out of 324 competitors)

2014

International Mathematics Competition, Blagoevgrad, Bulgaria

9th Place out of 79 competitors

2014

Vít Jarník International Mathematical Competition, Ostrava, Czech republic

Bronze Medal (163rd place)

2013

International Mathematical Olympiad (IMO), Santa Marta, Colombia

Acknowledgement

2013 & 2012

For successful representation of Slovakia by *Minister of Education, Science, Research and Sport of the Slovak Republic*

1st Place

2013

Slovak national round of Mathematical Olympiad for high school students, Košice, Slovakia

Bronze Medal (13th place)

2012

Middle European Mathematical Olympiad, Solothurn, Switzerland

**TALKS
& POSTERS**

Optimization Seminar

Sep '17 - Jun '18

Organizer of a group seminar, gave 5 talks given the time period KAUST, KSA

Microsoft Research

Mar '18

Talk: Randomized and Accelerated Algorithms for Minimizing Relatively Smooth Functions, followed by week-long research visit of Lin Xiao
Seattle, WA

Inform's Optimization Conference

Mar '18

Talk: Randomized and Accelerated Algorithms for Minimizing Relatively Smooth Functions (session organizer)
Denver, CO

Optimization and Big Data

Feb '18

Short talk/Poster: Randomized and Accelerated Algorithms for Minimizing Relatively Smooth Functions
KAUST, KSA

4th Conference on Optimization Methods and Software

Dec '17

Talk: Randomized and Accelerated Algorithms for Minimizing Relatively Smooth Functions (minisymposium organizer)

²The fellowship was awarded for 3,5 years, however it was cancelled since I decided to move to KAUST after first year of my PhD in Edinburgh. The Amazon part of funding is still in place.

Havana, Cuba

All Hands Meeting on Big Data Optimization

Aug '17 – Nov '17

3 talks at local group seminar (organizer)

KAUST, Saudi Arabia

Workshop on Modern Convex Optimization and Applications: AN70

July '17

Poster: Randomized Algorithms for Minimizing Relatively Smooth Functions

Toronto, Canada

Google Machine Learning Summit

June '17

Poster: Randomized Algorithms for Minimizing Relatively Smooth Functions

Zurich, Switzerland

SIAM Conference on Optimization

May '17

Talk: Randomized Methods for Minimizing Relatively Smooth Functions

Vancouver, Canada

All Hands Meeting on Big Data Optimization

Nov '16 – May '17

3 talks at local group seminar

Edinburgh, UK

Visual Computing - Modeling and Reconstruction

Apr '17

Poster: Randomized Algorithms for Minimizing Relatively Smooth Functions

KAUST, Saudi Arabia

**ATTENDANCE
AT
CONFERENCES
& WORKSHOPS**

Challenges in Optimization for Machine Learning

Mar '17

A technical meeting focused on research in optimization for machine learning

Alan Turing Institute, London, UK

Neural Information Processing Systems (NIPS)

Dec '16

Barcelona, Spain

5th IMA Conference of Numerical Linear Algebra and Optimization

Sep '16

Birmingham, UK

PhD TRAINING

Deep Learning

Mar '18 – present

Taking a Udacity Nanodegree course on Deep Learning

PhD courses - KAUST

Aug '17 – present

Qualifying Exams (passed): Numerical Linear Algebra, Probability and Statistics, Partial Differential Equations

Other: Data Mining, Numerical Optimization, Contemporary topics in Machine Learning

Autumn School on Algorithmic Optimization

Sep '16

Trier, Germany

PhD courses - Edinburgh

Sep '16 – May '17

Convex Analysis and Convex Optimization, Matrix Theory, Modern Optimization Methods for Big Data Problems, Research Seminar on Big Data Optimization

Mathematics of Machine Learning

Apr '16

One week intensive course focused mostly on optimization taught by a guest from University of Edinburgh and held in Bratislava, Slovakia

TEACHING

KAUST, Saudi Arabia

Aug '17 – Dec '17

Teaching Assistant, Special Topics in Data Sciences (PhD course)

University of Edinburgh, UK

Feb '17 – Apr '17

Tutor of Engineering Mathematics (undergraduate course) and Modern Optimization Methods for Big Data Problems (postgraduate course)

WORK EXPERIENCE

Slovak Academy of Sciences, Slovakia (~30h/m) Jul – Aug '15, Feb – Jun '16
Research Assistant: designing new methods for causality detection in reconstructed phase space; continued as my Bachelor thesis.

FinViz, Slovakia (~70h/m) Oct '14 – June '15
Part-time C# developer: building automatic detector of stock chart patterns, backtesting trading strategies based on the patterns.

Trojsten NGO, Slovakia (~30h/m) May '13 – Aug '16
Volunteer educator, manager: Co-organize competitions and camps (9 one week camps, approx. 35 participants) for talented high school students in mathematics in Slovakia and Czech republic. Gave approx. 45 lectures on different topics, proposed approx. 80 problems and marked 560 solutions. In 2014 and 2015 I was one of 3 leading organizers of math division of Trojsten (approx. 30 volunteers in the division).

Slovak Mathematical Olympiad Dec '13 – Jun '16
Coordinator of regional (3 times, approx. 90 solutions marked), national round (2 times, approx 80 solutions marked) and team selection camp (3 times, approx. 60 solutions marked).
Lecturer at preparation camp for IMO and MEMO (5 times 3,5 hour lecture for 12 students).

Tatra Banka, Slovakia (~70h/m) Jun '14 – Oct '14
VBA developer: building Excel macros in order to simplify the routine at the project management department.

Gymnázium J. Hronca, Slovakia (~8h/m) Sep '13 – Jun '14
Teacher: preparing talented high school students for Mathematical Olympiad (approx. 8 students).

SKILLS

Languages: Slovak (native), English (fluent)

Computer skills Julia, Python, MatLab, Tensorflow, C++/C, R, L^AT_EX