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Spyridon Pougkakiotis

Contact Information

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Interests

Optimization, Risk-Aware Learning, Computational Mathematics, Operational Research

Experience

Lecturer in Mathematics

University of Dundee, School of Science and Engineering — Sep. 2023 – Present

Faculty position (Research and Teaching)

Postdoctoral Research Associate

Yale University, Department of Electrical Engineering — Apr. 2022 – Apr. 2023

Research position on *stochastic and nonlinear optimization* hosted by Dr. Dionysios Kalogerias

Research Assistant

The University of Edinburgh, School of Mathematics — Sep. 2020 – Jun. 2021

Research for a Google-funded project with name "*Fast (1+x)-order methods for linear programming*"

Teaching

- **The University of Edinburgh**, School of Mathematics — Sep. 2017 – Aug. 2020
  "*Mathematics Revision Course*" (PG)

Tutoring

- **The University of Edinburgh**, School of Mathematics — Sep. 2018 – Aug. 2021
  "*Large-Scale Optimization for Data Science*" (PG)
- **The University of Edinburgh**, School of Mathematics — Sep. 2018 – Aug. 2020
  "*Fundamentals of Optimization*" (UG–PG)
- **The University of Edinburgh**, School of Engineering — Sep. 2018 – Aug. 2019
  "*Engineering Mathematics*" (UG–PG)
- **The University of Edinburgh**, School of Mathematics — Sep. 2017 – Aug. 2020
  "*Optimization Methods in Finance*" (PG)
- **The University of Edinburgh**, School of Mathematics — Sep. 2017 – Aug. 2020
  "*Fundamentals of Operational Research*" (UG–PG)
- **The University of Edinburgh**, School of Mathematics — Sep. 2017 – Aug. 2018
  "*Linear Programming, Modelling and Solution*" (UG)

Referee for Scientific Journals

- *SIAM Journal on Scientific Computing* — May 2023 – present
- *Croatian Operational Research Review* — Mar. 2023 – present
- *Journal of Optimization Theory and Applications* — Jul. 2022 – present
- *Computational and Applied Mathematics* — May 2022 – present
- *SIAM Journal on Matrix Analysis and Applications* — Sep. 2021 – present
- *Numerical Algorithms* — Sep. 2019 – present
- *SIAM Journal on Optimization* — Apr. 2019 – present
- *Optimization Methods and Software* — May 2018 – present

- *Computational Optimization and Applications* Feb. 2018 – present
- *Mathematical Programming* Dec. 2017 – present

EDUCATION

The University of Edinburgh, Edinburgh, Scotland, UK. Sep. 2017 – Dec. 2021
PhD in *Optimization and Operational Research* (**Supervisor:** Prof. Jacek Gondzio)

The University of Edinburgh, Edinburgh, Scotland, UK. Sep. 2016 – Aug. 2017
MSc in *Operational Research with Computational Optimization* (**Grade:** 82.4/100, Distinction)

University of Athens, Athens, Greece. Sep. 2012 – Jul. 2016
BSc in *Informatics And Telecommunications* (**Grade:** 9.09/10, Top 1%)

AWARDS AND FELLOWSHIPS

- *Principal's Career Development Scholarship* - PhD funding **The University of Edinburgh**
  Sep. 2017 – Jan. 2021
- *A. G. Leventis Scholarship* - Educational Grant **A. G. Leventis Foundation**
  Sep. 2017 – Dec. 2020
- *Highly Skilled Workforce Scholarship* - Full MSc Funding **The University of Edinburgh**
  Jun. 2016 – Aug. 2017

TECHNICAL SKILLS

Programming and Scripting Languages: C, MATLAB, Julia, Python
Tools: LaTeX, Excel

PUBLICATIONS

Journal Papers

- **S. P.**, D. S. Kalogerias, "A zeroth-order proximal stochastic gradient method for weakly convex stochastic optimization", *arXiv:2205.01633 (Accepted: SIAM Journal on Scientific Computing), 2023*
  https://doi.org/10.48550/arXiv.2205.01633
- J. Gondzio, **S. P.**, J. W. Pearson, "General-purpose preconditioning for regularized interior point methods", *Computational Optimization and Applications, 83, 727–757, 2022*
  https://doi.org/10.1007/s10589-022-00424-5
- V. De Simone, D. di Serafino, J. Gondzio, **S. P.**, M. Viola, "Sparse approximations with interior point methods", *SIAM Review, 64(4), 954–988, 2022*
  https://doi.org/10.1137/21M1401103
- **S. P.**, J. Gondzio, "An interior point-proximal method of multipliers for linear positive semidefinite programming", *Journal of Optimization Theory and Applications, 192(1), 97–129, 2022*
  https://doi.org/10.1007/s10957-021-01954-4
- L. Bergamaschi, J. Gondzio, Á. Martínez, J. W. Pearson, **S. P.**, "A new preconditioning approach for an interior point-proximal method of multipliers for linear and convex quadratic programming", *Numerical Linear Algebra with Applications, e2361, 2021*
  https://doi.org/10.1002/nla.2361
- **S. P.**, J. Gondzio, "An interior point-proximal method of multipliers for convex quadratic programming", *Computational Optimization and Applications, 78(2), 307–351, 2021*
  https://doi.org/10.1007/s10589-020-00240-9
- **S. P.**, J. W. Pearson, S. Leveque, J. Gondzio, "Fast solution methods for convex quadratic optimization of fractional differential equations", *SIAM Journal on Matrix Analysis and Applications, 41(3), 1443–1476, 2020*
  https://doi.org/10.1137/19M128288X
- **S. P.**, J. Gondzio, "Dynamic non-diagonal regularization in IPMs for linear and convex quadratic programming", *Journal of Optimization Theory and Applications 181(3), 905–945, 2019*
  https://doi.org/10.1007/s10957-019-01491-1

Conference Papers

- H. Hashmi, **S. P.**, D. S. Kalogerias, "Model-free learning of optimal beamformers for passive IRS-assisted sumrate maximization", *ICASSP 2023*
  https://doi.org/10.1109/ICASSP49357.2023.10095269
- P. Bouboulis, **S. P.**, S. Theodoridis, "Efficient KLMS and KRLS algorithms: A random Fourier feature perspective ", *Statistical Signal Processing Workshop (SSP), 2016 IEEE*
  https://doi.org/10.1109/SSP.2016.7551811

Preprints

- H. Hashmi, **S. P.**, D. S. Kalogerias, "Model-free learning of optimal two-stage beamformers for passive IRS-aided network design", *arXiv:2304.11464, 2023*
  https://arxiv.org/abs/2304.11464
- **S. P.**, J. Gondzio, D. S. Kalogerias, "An active-set method for sparse approximations. Part I: Separable ℓ_1 terms", *arXiv:2201.10211v2, 2023*
  https://doi.org/10.48550/arXiv.2201.10211
- **S. P.**, J. Gondzio, D. S. Kalogerias, "An active-set method for sparse approximations. Part II: General piecewise-linear terms", *arXiv:2302.14497, 2023*
  https://doi.org/10.48550/arXiv.2302.14497
- D. S. Kalogerias, **S. P.** "Risk-constrained nonconvex functional resource allocation has zero duality gap", *arXiv:2206.11948v2, 2022*
  https://doi.org/10.48550/arXiv.2206.11948

WORKSHOPS AND CONFERENCES

Invited Speaker

- "*USNA Optimization and Operational Research Conference*" **USNA**
  2–4 Jun., 2021
- "*Communications in Numerical Linear Algebra*" **Independent**
  26 Apr., 2021
- "*3rd IMA and ORS Conference on Mathematics of Operational Research*" **The OR Society**
  20–23 Apr., 2021
- "*Workshop on Fast Solvers for Fractional Diffusion Problems*" **Univesity of Strathclyde**
  2 Apr., 2020
- "*Numerical Linear Algebra for PDEs and Large Scale Optimization*" **University of Padova**
  17–18 Feb., 2020
- "*Advances in Linear Algebra and Huge-Scale Optimization*" **The University of Edinburgh**
  1–2 Jul., 2019
- "*Strathclyde-Edinburgh Seminar*" **University of Strathclyde**
  31 Jan., 2019

Contributing Speaker

- "*18th Workshop on Advances in Continuous Optimization*" **ENAC**
  7–9 Jul., 2021
- "*6th International Conference on Continuous Optimization*" **Technical University of Berlin**
  3–8 Aug., 2019
- "*17th Workshop on Advances in Continuous Optimization*" **University of Strathclyde**
  28–29 Jun., 2019
- "*23rd International Symposium on Mathematical Programming*" **University of Bordeaux**
  1–6 Jul., 2018
- "*6th IMA Conference on NLA and Optimization*" **University of Birmingham**
  27–29 Jun., 2018

REFERENCES

Available upon request.