

RUTH MISENER

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Professor in Computational Optimisation
Department of Computing

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RESEARCH DOMAIN: COMPUTATIONAL OPTIMISATION

FOUNDATIONS

Mixed-integer nonlinear optimisation (MINLP), Computational & numerical optimisation, Software implementations for global optimisation, Process systems engineering

APPLICATIONS

Decision-making under uncertainty, Energy efficiency, Process network design & operations, Scheduling

REPRODUCIBILITY & ACCESSIBILITY

My research team develops and maintains open source code on [GitHub](#), releases video presentations on [YouTube](#), and announces new research on Twitter (Ruth [@RuthMisener](#), Group [@CogImperial](#))

PROFESSIONAL APPOINTMENTS

Imperial College		London, UK
<i>Professor</i>	Department of Computing	2020-
<i>Senior Lecturer</i>	Department of Computing	2017-20
<i>Lecturer</i>	Department of Computing	2014-17
<i>Royal Academy of Eng. Research Fellow</i>	Centre for Process Systems Engineering	2012-14

EDUCATION

Princeton University		Princeton, NJ
<i>PhD</i> in Chemical Engineering. Advised by Professor C. A. Floudas.		2012
<i>Thesis Title:</i> Novel Global Optimization Methods: Theoretical & Computational Studies on Pooling Problems with Environmental Constraints		
Massachusetts Institute of Technology		Cambridge, MA
<i>Bachelor of Science</i> in Chemical Engineering		2007

AWARDS

FELLOWSHIPS / SCHOLARSHIPS

BASF / Royal Academy of Engineering Research Chair in Data-Driven Optimisation	2022-27
Engineering & Physical Sciences Research Council Early Career Fellowship	2017-22
Royal Academy of Engineering Research Fellowship	2012-17
Imperial College Junior Research Fellowship (<i>declined in favour of the RAEng Fellowship</i>)	2012-15
USA National Science Foundation Graduate Research Fellowship	2007-12
Princeton University Gordon Y. S. Wu Fellowship	2007-12
Robert C. Byrd Honors Scholarship	2003-07

AWARDS

<i>Distinguished Paper Award</i> , Conference on the Integration of Constraint Programming, Artificial Intelligence, & Operations Research (CPAIOR, with Kronqvist & Tsay)	2021
<i>CAST Outstanding Young Researcher Award</i> , American Institute of Chemical Engineers	2020
<i>Best (Innovative) Demo</i> , International Conference on Autonomous Agents & Multi-Agent Systems (AAMAS, with Cyras, Karamlou, Lee, Letsios & Toni)	2020

<i>Industrial & Engineering Chemistry Research</i> 2019 Class of Influential Researchers		2019
Suzanne C. and Duncan A. Mellichamp Distinguished Lecture, Georgia Tech		2018
Finalist for <i>Best Teaching for Postgraduates</i> , Imperial Student Academic Choice Award		2018
Sir George Macfarlane Medal		2017
RAEng Engineers Trust Young Engineer of the Year		2017
American Institute of Chemical Engineers 35 Under 35, <i>Innovation</i> Category		2017
Finalist for <i>Best Innovation in Teaching</i> , Imperial Student Academic Choice Award		2016
W. David Smith, Jr. Graduate Student Paper Award		2014
Best Paper of 2013, <i>Journal of Global Optimization</i> (with Floudas)	awarded in	2014
Top Reviewer, <i>Computers & Chemical Engineering</i>		2013
Best Poster, 2 nd Belgian Symposium on Tissue Engineering (39 entries)		2013
Excellence in Teaching, Princeton School of Engineering & Applied Sciences		2010
Member, <i>MIT Tau Beta Pi - Engineering Honor Society</i>		2007
The top 20% of MIT Engineering Undergraduates are eligible for TBP		

AWARDS TO MY TEAM

I am privileged to work with talented, motivated researchers. The following list is limited to my team members' achievements where I made some (often very small!) contribution, e.g. as thesis supervisor.

EPSRC David Clarke Postdoctoral Research Fellowship	<i>Tsay</i>	2020
Imperial College Research Fellowship	<i>Tsay</i>	2020
NewVoice Media Prize for Computing MEng Thesis	<i>Suraj G</i>	2019
<i>Runner up</i> , May Hicks Award from the Operational Research Society	<i>Page</i>	2019
Newton International Fellowship from the Royal Society	<i>Kronqvist</i>	2019
STEM for Britain, Selected to present research in Parliament	{ <i>Kronqvist</i>	2021
	{ <i>Mistry</i>	2019
	{ <i>Olofsson</i>	2019
2 nd <i>Presentation Prize</i> , PSE@ResearchDayUK	<i>Wiebe</i>	2018
1 st <i>Poster Prize</i> , UK/IE Annual Meeting of the Society for Industrial & Applied Mathematics (two-way tie, 34 entries)	<i>Kouyialis</i>	2018
<i>Poster Prizes</i> in Centre for Process Systems Engineering Annual Industrial Consortium Meeting	{ <i>Thebelt</i>	2019
	{ <i>Wiebe</i>	2019
	{ <i>Kouyialis</i>	2017
Winton Capital Applied Computing MSc Project Prize	<i>Wesselhoeft</i>	2017
1 st <i>Poster Prize</i> PSE@ResearchDayUK (19 entries)	<i>Kouyialis</i>	2017
2 nd <i>Prize</i> Top Presentation at the Dept. of Computing Research Associate Symposium	<i>Letsios</i>	2017
IBM PhD Fellowship	<i>Baltean-Lugojan</i>	2017
FOCAPO/CPC Travel Grant	<i>Kouyialis</i>	2017
Donald Davies Memorial Prize for MEng Thesis	<i>Mistry</i>	2015
Prizes in Dept. of Computing Google Poster Competition	{ <i>Olofsson</i>	2018
	{ <i>Baltean-Lugojan</i>	2016
	{ <i>Kouyialis</i>	2015
2 nd <i>Prize</i> Nobuyuki Idei Young Entrepreneur Award	<i>Fuentes-Garí</i>	2013

PREPRINTS

P7 Ceccon F.^{*}, Jalving J.^{*}, Haddad J., Thebelt A., Tsay C., Laird C. D.[†], Misener R.[†] OMLT: Optimization & Machine Learning Toolkit. [arXiv](#), 2022.

* These authors contributed equally. † These authors contributed equally. [Video link](#), [GitHub link](#)

P6 Folch J. P., Zhang S., Lee R. M., Shafei B., Walz D., Tsay C., van der Wilk M., Misener R. SnAKE: Bayesian Optimization with Pathwise Exploration. [arXiv](#), 2022.

- P5** Kronqvist J., **Misener R.**, Tsay C. P-split formulations: A class of intermediate formulations between big-M and convex hull for disjunctive constraints. *arXiv*, 2022.
- P4** Olofsson S., Schultz E. S., Mhamdi A., Mitsos A., Deisenroth M. P., **Misener R.** Design of Dynamic Experiments for Black-Box Model Discrimination. *arXiv*, 2021.
- P3** Ceccon F., Baltean-Lugojan R., Bynum M. L., Li C., **Misener R.** GALINI: An extensible mixed-integer quadratically-constrained optimization solver. *optimization-online*, 2021. [Video link](#), [GitHub](#)
- P2** Campos J. S., Parpas P., **Misener R.** Partial Lasserre relaxation for sparse Max-Cut. *optimization-online*, 2020. [Video link](#), [GitHub link](#)
- P1** Baltean-Lugojan R., Bonami P., **Misener R.**, Tramontani A. Strong sparse outer-approximating cut selection via trained neural nets from quadratic semidefinite relaxations. *optimization-online*, 2018.

PEER-REVIEWED JOURNAL PAPERS ([GOOGLE SCHOLAR](#))

- J53** Thebelt A., Wiebe J., Kronqvist J., Tsay C., Misener R., Maximizing information from chemical engineering data sets: Applications to machine learning. *Chemical Engineering Science*, **252**:117469, 2022.
- J52** Ceccon F., **Misener R.** Solving the pooling problem at scale with extensible solver GALINI. *Computers & Chemical Engineering*, **159**:107660, 2022. [GitHub link](#)
- J51** Wiebe J., Cecílio I., Dunlop J., **Misener R.** A robust approach to warped Gaussian process-constrained optimization. *Mathematical Programming*, 2022. [Video link](#), [GitHub link](#)
- J50** Thebelt A., Tsay C., Lee R. M., Sudermann-Merx N., Walz D., Tranter T., **Misener R.** Multi-objective constrained optimization for energy applications via tree ensembles. *Applied Energy*, **306**: 118061, 2022. [Video link](#), [GitHub link](#)
- J49** Wiebe J., **Misener R.** ROmodel: modeling robust optimization problems in Pyomo. *Optimization & Engineering*, 2021. [Video link](#), [GitHub link](#)
- J48** Mistry M., Letsios D., Lee R. M., Krennich G., **Misener R.** Mixed-Integer Convex Nonlinear Optimization with Gradient-Boosted Trees Embedded. *INFORMS Journal on Computing*, **33**: 1103-1119, 2021. [GitHub link](#)
- J47** Thebelt A., Kronqvist J., Mistry M., Lee R. M., Sudermann-Merx N., **Misener R.** ENTMOOT: A Framework for Optimization over Ensemble Tree Models. *Computers & Chemical Engineering*, **151**:107343, 2021. [Video link](#), [GitHub link](#)
- J46** Pistikopoulos E. N., Barbosa-Povoa A., Lee J. H., **Misener R.**, Mitsos A., Reklaitis G. V., Venkatasubramanian V., You F., Gani R. Process Systems Engineering – The Generation Next? *Computers & Chemical Engineering*, **147**:107252, 2021.
- J45** Letsios D., Bradley J. T., Suraj G, **Misener R.**, Page N. Approximate and robust bounded job start scheduling for Royal Mail delivery offices. *Journal of Scheduling*, **24**:237-258, 2021.
- J44** Letsios D., Mistry M., **Misener R.** Exact Lexicographic Scheduling & Approximate Rescheduling, *European Journal of Operational Research*, **290**:469-478, 2021. [GitHub link](#)
- J43** Kronqvist J., **Misener R.** A disjunctive cut strengthening technique for convex MINLP, *Optimization & Engineering*, **22**: 1315-1354, 2021. [GitHub link](#)
- J42** Ceccon F., Siirola J. D., **Misener R.** SUSPECT: MINLP Special Structure Detector for Pyomo, *Optimization Letters*, **14**: 801-814, 2020. [GitHub link](#)
- Invited article for a special issue in memory of Professor C. A. Floudas**
- J41** Letsios D., Baltean-Lugojan R., Ceccon F., Mistry M., Wiebe J., **Misener R.** Approximation Algorithms for Process Systems Engineering. *Computers & Chemical Engineering*, **132**: 106599, 2020. [GitHub link](#)
- Invited for a special issue celebrating the *Life & Work of Prof. R.W.H. Sargent***

- J40** Kouyialis G., Wang X., **Misener R.** Symmetry Detection for Quadratic Optimization Using Binary Layered Graphs. *Processes*, **7**: 11, 2019.
Invited for the special issue to Celebrate the Life & Work of Prof. R.W.H. Sargent
- J39** Wiebe J., Cecilio I., **Misener R.** Robust optimization for the pooling problem. *Industrial & Engineering Chemistry Research*, **58**:12712-12722, 2019.
Invited for a special issue titled I&EC Research 2019 Class of Influential Researchers
- J38** Furini F., Traversi E., Belotti P., Frangioni A., Gleixner A., Gould N., Liberti L., Lodi A., **Misener R.**, Mittelmann H., others, QPLIB: A Library of Quadratic Programming Instances, *Mathematical Programming Computation*, **11**:237265, 2019.
- J37** Campos J. S., **Misener R.**, Parpas P. A multilevel analysis of the Lasserre hierarchy, *European Journal of Operational Research*, **277**:32-41, 2019.
- J36** Olofsson S., Hebing L., Niefenführ S., Deisenroth M. P., **Misener R.** GPdoemd: a Python package for design of experiments for model discrimination, *Computers & Chemical Engineering*, **125**:54-70, 2019.
Invited article for a special issue dedicated to PSE 2018, [GitHub link](#)
- J35** Olofsson S., Mehrian M., Calandra R., Geris L., Deisenroth M. P., **Misener R.** Bayesian Multi-Objective Optimisation with Mixed Analytical and Black-Box Functions: Application to Tissue Engineering, *IEEE Transactions on Biomedical Engineering*, **66**:727 - 739, 2019.
- J34** Wiebe J., Cecilio I., **Misener R.** Data-driven optimization of processes with degrading equipment, *Industrial & Engineering Chemistry Research*, **57**:17177 - 17191, 2018. [GitHub link](#)
- J33** **Misener R.**, Allenby M. C., Fuentes-Garí M., Gupta K., Wiggins T., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Stem Cell Biomanufacturing under Uncertainty: A Case Study in Optimizing Red Blood Cell Production, *AIChE Journal*, **64**:3011 - 3022, 2018.
The editors invited future chemical engineering leaders to contribute research for Futures Series. Of the 25 researchers appearing in the founding issue, I was 1 of 6 invited to present at a special session in the 2018 AIChE meeting ([weblink](#)).
- J32** Baltean-Lugojan R., **Misener R.**, Piecewise Parametric Structure in the Pooling Problem – from Sparse Strongly-Polynomial Solutions to NP-Hardness, *Journal of Global Optimization*, **71**:655 - 690, 2018. **Invited article for a special issue in memory of Professor C. A. Floudas, [GitHub link](#)**
- J31** Mistry M., Callia D'Iddio A., Huth M., **Misener R.** Satisfiability Modulo Theories for Process Systems Engineering, *Computers & Chemical Engineering*, **113**:98 - 114, 2018.
Invited article for a special issue dedicated to FOCAPO/CPC 2017
- J30** Letsios D., Kouyialis G., **Misener R.** Heuristics with Performance Guarantees for the Minimum Number of Matches Problem in Heat Recovery Network Design, *Computers & Chemical Engineering*, **113**:57 - 85, 2018. **Invited article for a special issue in memory of Professor C. A. Floudas, [GitHub link](#)**
- J29** Mehrian M., Guyot Y., Papantoniou I., Olofsson S., Sonnaert M., **Misener R.**, Geris L. Maximizing Neotissue Growth Kinetics in a Perfusion Bioreactor: An *In Silico* Strategy Using Model Reduction and Bayesian Optimization, *Biotechnology & Bioengineering*, **115**:617 - 629, 2018.
- J28** Allenby M. C., **Misener R.**, Panoskaltis N., Mantalaris A. A quantitative three-dimensional (3D) image analysis tool for maximal acquisition of spatial heterogeneity data. *Tissue Engineering Part C: Methods*; **23**:108 - 117, 2017.
- J27** Savvopoulos S. V., **Misener R.**, Panoskaltis N., Pistikopoulos E. N., Mantalaris A. A Personalized Framework for Dynamic Modeling of Disease Trajectories in Chronic Lymphocytic Leukemia. *IEEE Transactions on Biomedical Engineering*; **63**:2396 - 2404, 2016.
- J26** Ceccon F., Kouyialis G., **Misener R.** Using Functional Programming to recognize Named Structure in an Optimization Problem: Application to Pooling. *AIChE Journal*; **62**:3085 - 3095, 2016. [GitHub](#)
Invited article for Tribute to Founders: Roger Sargent. Process Systems Engineering

- J25** Mistry M., **Misener R.** Optimising Heat Exchanger Network Synthesis using Convexity Properties of the Logarithmic Mean Temperature Difference. *Computers & Chemical Engineering*; **94**:1 - 17, 2016. [GitHub link](#)
- J24** Boukouvala F., **Misener R.**, Floudas C. A. Global Optimization Advances in Mixed-Integer Nonlinear Programming, MINLP, and Constrained Derivative-Free Optimization, CDFO. *European Journal of Operational Research*; **252**:701 - 727, 2016.
- J23** Fuentes-Garí M., **Misener R.**, Georgiadis M. C., Kostoglou M., Pistikopoulos E. N., Panoskaltsis N., Mantalaris A. Selecting a differential equation cell cycle model for simulating leukemia treatment; *Industrial & Engineering Chemistry Research*; **54**:8847 - 8859, 2015.
- J22** Velliou E., Brito dos Santos S., Papathanasiou M. M., Fuentes-Garí M., **Misener R.**, Panoskaltsis N., Mantalaris A., Pistikopoulos E. N. Towards unravelling the kinetics of an Acute Myeloid Leukaemia model system under oxidative and starvation stress: A comparison between two and three dimensional cultures; *Bioprocess & Biosystems Engineering*; **38**:1589 - 1600, 2015.
- J21** Fuentes-Garí M., Velliou E., **Misener R.**, Pefani E., Rende M., Panoskaltsis N., Mantalaris A., Pistikopoulos E. N. A systematic framework for the design, simulation and optimization of personalized healthcare: Making and healing blood; *Computers & Chemical Engineering*; **81**:80 - 93, 2015.
- J20** Fuentes-Garí M., **Misener R.**, García-Münzer D., Velliou E., Georgiadis M. C., Kostoglou M., Pistikopoulos E. N., Panoskaltsis N., Mantalaris A. A mathematical model of sub-population kinetics for the deconvolution of leukaemia heterogeneity. *Journal of The Royal Society Interface*; **12**(108), 2015.
- J19** **Misener R.**, Smadbeck J. B., Floudas C. A. Dynamically-generated cutting planes for mixed-integer quadratically-constrained quadratic programs and their incorporation into GloMIQO 2; *Optimization Methods & Software*; **30**:215 - 249, 2015.
- J18** Velliou E., Brito dos Santos S., Fuentes-Garí M., **Misener R.**, Pefani E., Panoskaltsis N., Mantalaris A., Pistikopoulos E. N. Key environmental stress biomarker candidates for the optimisation of chemotherapy treatment of leukaemia; *Malta Journal of Health Sciences*; **1**:29 - 34, 2014.
- J17** **Misener R.**, Fuentes-Garí M., Rende M., Velliou E., Panoskaltsis N., Pistikopoulos E. N., Mantalaris A. Global Superstructure Optimisation of Red Blood Cell Production in a Parallelised Hollow Fibre Bioreactor, *Computers & Chemical Engineering*; **71**:532 - 553, 2014.
- J16** **Misener R.**, Floudas C. A. ANTIGONE: Algorithms for coNTinuous / Integer Global Optimization of Nonlinear Equations, *Journal of Global Optimization*; **59**:503 - 526, 2014.
- J15** **Misener R.**, Floudas C. A. A framework for globally optimizing mixed-integer signomial programs. *Journal of Optimization Theory & Applications*; **161**:905 - 932, 2014.
- J14** **Misener R.**, Floudas C. A. GloMIQO: Global Mixed-Integer Quadratic Optimizer. *Journal of Global Optimization*; **57**:3 - 50, 2013. **Journal of Global Optimization Best Paper of 2013**
W. David Smith, Jr. Graduate Student Paper Award, 2014
- J13** **Misener R.**, Floudas C. A. Global Optimization of Mixed-Integer Models with Quadratic and Signomial Functions: A Review. *Applied Computational Math.*; **11**:317 - 336, 2012.
- J12** Skjäl A., Westerlund T., **Misener R.**, Floudas C. A. A Generalization of the Classical α BB Convex Underestimation via Diagonal and Non-Diagonal Quadratic Terms. *Journal of Optimization Theory & Applications*; **154**:462 - 490, 2012.
- J11** **Misener R.**, Floudas C. A. Global Optimization of Mixed-Integer Quadratically Constrained Quadratic Programs (MIQCQP) through Piecewise-Linear and Edge-Concave Relaxations. *Mathematical Programming, Series B*; **136**:155 - 182, 2012.
W. David Smith, Jr. Graduate Student Paper Award, 2014
- J10** Li J., **Misener R.**, Floudas C. A. Scheduling of Crude Oil Operations under Demand Uncertainty: A Robust Optimization Framework with Global Optimization. *AIChE Journal*; **58**:2373 - 2396, 2012.

- J09** Baliban R. C., Elia J. A., **Misener R.**, Floudas C. A. Global optimization of a MINLP process synthesis model for thermochemical based conversion of hybrid coal, biomass, and natural gas to liquid fuels. *Computers & Chemical Engineering*; **42**: 64 - 86; 2012.
- J08** Li J., **Misener R.**, Floudas C. A. Continuous-Time Modeling and Global Optimization Approach for Scheduling of Crude Oil Operations. *AIChE Journal* **58**: 205 - 226; 2012.
- J07** **Misener R.**, Thompson J. P., Floudas C. A. APOGEE: Global Optimization of Standard, Generalized, and Extended Pooling Problems via Linear and Logarithmic Partitioning Schemes. *Computers & Chemical Engineering* **35**: 876 - 892; 2011.
- J06** **Misener R.**, Gounaris C. E., Floudas C. A. Mathematical Modeling and Global Optimization of Large-Scale Extended Pooling Problems with the (EPA) Complex Emissions Constraints. *Computers & Chemical Engineering* **34**: 1432 - 1456; 2010.
- J05** **Misener R.**, Floudas C. A. Global Optimization of Large-Scale Generalized Pooling Problems: Quadratically Constrained MINLP Models. *Industrial & Engineering Chemistry Research* **49**: 5424 - 5438; 2010.
- J04** **Misener R.**, Floudas C. A. Piecewise-Linear Approximations of Multidimensional Functions. *Journal of Optimization Theory & Applications* **145**: 120 - 147; 2010.
- J03** **Misener R.**, Floudas C. A. Advances for the Pooling Problem: Modeling, Global Optimization, & Computational Studies. *Applied & Computational Math.* **8**: 3 - 22; 2009.
- J02** **Misener R.**, Gounaris C. E., Floudas C. A. Global Optimization of Gas Lifting Operations: A Comparative Study of Piecewise Linear Formulations. *Industrial & Engineering Chemistry Research* **48**: 6098 - 6104; 2009.
- J01** Gounaris C. E., **Misener R.**, Floudas C. A. Computational Comparison of Piecewise-Linear Relaxations for Pooling Problems. *Industrial & Engineering Chemistry Research* **48**: 5742 - 5766; 2009.

COMPUTER SCIENCE CONFERENCE PROCEEDINGS

- C07** Tsay C., Kronqvist J., Thebelt A., **Misener R.** Partition-Based Formulations for Mixed-Integer Optimization of Trained ReLU Neural Networks. *Proceedings of the 35th Conference on Neural Information Processing Systems (NeurIPS)*, 2021. CORE A*, Acceptance Rate = 26%, [Video link](#), [GitHub link](#)
- C06** Kronqvist J., **Misener R.**, Tsay C. Between steps: Intermediate relaxations between big-M and convex hull formulations. *Proceedings of the International Conference on Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR)*, 2021. CORE B Acceptance Rate = 40%, [Video link](#), **Distinguished Paper Award** (1 award for 30 accepted papers)
- C05** Cyras K., Karamlou A., Lee M., Letsios D., **Misener R.**, Toni F. AI-assisted Schedule Explainer for Nurse Rostering. *Proceedings of the 19th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, 2020. CORE A*, *Demo Track*, **Best (Innovative) Demo**, [link](#)
- C04** Botoeva E., Kronqvist J., Kouvaros P., Lomuscio A., **Misener R.** Efficient Verification of ReLU-based Neural Networks via Dependency Analysis. *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI)*, 2020. CORE A*, Acceptance Rate = 21%.
- C03** Bradley J. T., Letsios D., **Misener R.**, Page N. Approximating Bounded Job Start Scheduling with Application in Royal Mail Deliveries under Uncertainty. *Proceedings of the 13th Conference on Combinatorial Optimization & Applications (COCO)*, 2019. CORE B, Acceptance Rate \approx 50%.
- C02** Cyras K., Letsios D., **Misener R.**, Toni F. Argumentation for Explainable Scheduling. *Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI)*, 2019. CORE A*, Acceptance Rate = 16%. We were given an oral presentation.

C01 Olofsson S., Deisenroth M. P., **Misener R.** Design of Experiments for Model Discrimination Hybridising Analytical and Data-Driven Approaches. *Proceedings of the 35th International Conference on Machine Learning (ICML)*, PMLR **80**:3905 - 3914, 2018.

CORE A*, Acceptance Rate = 25%. We were given a **long, 20 min** presentation

ENGINEERING CONFERENCE PROCEEDINGS

E26 Wiebe J., Misener R. ROmodel: A Python Robust Optimization Modeling Toolbox. In Turkey & Gani (Eds), Proceedings of the 31st European Symposium on Computer Aided Process Engineering. Vol. 50 of *Computer-Aided Chemical Engineering*. Istanbul, TR; 2021, pp 683 - 688.

E25 Thebelt A., Kronqvist J., Lee R. M., Sudermann-Merx N., **Misener R.** Global optimization with ensemble machine learning models. In Pierucci et al. (Eds), Proceedings of the 30th European Symposium on Computer Aided Process Engineering. Vol. 48 of *Computer-Aided Chemical Engineering*. Milan, IT; 2020, pp 1981 - 1986.

E24 Wiebe J., Cecilio I., **Misener R.** The robust pooling problem. In Kiss et al. (Eds), Proceedings of the 29th European Symposium on Computer Aided Process Engineering. Vol. 46 of *Computer-Aided Chemical Engineering*. Eindhoven, NL; 2019, pp 907 - 912.

E23 Olofsson S., Deisenroth M. P., **Misener R.** Optimal Design of Experiments for Model Discrimination using Gaussian Process Surrogate Models. In Eden et al. (Eds), Proceedings of the 13th International Symposium on Process Systems Engineering. Vol. 44 of *Computer-Aided Chemical Engineering*. San Diego, CA; 2018, pp 847 - 852.

E22 Wesselhoeft C., Ham D., **Misener R.** Algorithms for Mixed-Integer Optimization Constrained by Partial Differential Equations. In Eden et al. (Eds), Proceedings of the 13th International Symposium on Process Systems Engineering. Vol. 44 of *Computer-Aided Chemical Engineering*. San Diego, CA; 2018, pp 799 - 804. [GitHub link](#)

E21 Olofsson S., Mehrian M., Geris L., Calandra R., Deisenroth M. P., **Misener R.** Bayesian Multi-Objective Optimisation of Neotissue Growth in a Perfusion Bioreactor Set-Up. In Espuña et al. (Eds), Proceedings of the European Symposium on Computer Aided Process Engineering. Vol. 39 of *Computer-Aided Chemical Engineering*. Barcelona, ES; 2017, pp 2155 - 2160.

E20 Mistry M., **Misener R.** Integrating Mixed-Integer Optimisation & Satisfiability Modulo Theories: Application to Scheduling. In Maravelias et al. (Eds), Foundations of Computer Aided Process Operations/Chemical Process Control, FOCAP/CP. Tucson, AZ; 2017.

Invited article for the *Young Investigator Session*

E19 Kouyialis G., **Misener R.** Detecting Symmetry in Designing Heat Exchanger Networks. In Maravelias et al. (Eds), Foundations of Computer Aided Process Operations/Chemical Process Control, FOCAP/CP. Tucson, AZ; 2017.

E18 Allenby M. C., Tahlawi A., **Misener R.**, Brito dos Santos S., Mantalaris A., Panoskaltis N. Spatiotemporal Mapping of Erythroid, Stromal, and Osteogenic Niche Formation to Support Physiologic Red Cell Production in a 3-Dimensional Hollow Fibre Perfusion Bioreactor. *Blood*, **128**; 2016; p 3885.

E17 Ulmasov D., Baroukh C., Chachuat B., Deisenroth M. P., **Misener R.** Bayesian Optimisation with Dimension Scheduling Algorithm: Application to Biological Systems. In Kravanja, Bogataj (Eds), 26th European Symposium on Computer Aided Process Engineering. Vol. 38 of *Computer-Aided Chemical Engineering*. Portorož, SI; 2016; pp 1051 - 1056.

E16 Fuentes-Garí M., Zemenides S., **Misener R.**, Georgiadis M. C., Pistikopoulos E. N., Mantalaris A., Panoskaltis N. Use of Mathematical Modelling Indicates That Patients Treated for Acute Myeloid Leukaemia (AML) Are Undertreated When Ideal Body Weight Is Used to Dose Chemotherapy. *Blood*, **126**; 2015; p 4522.

- E15** Allenby M. C., Tahlawi A., Brito Dos Santos S., Hwang Y. S., **Misener R.**, Panoskaltzis N., Mantalaris A. Development of an ex vivo bone marrow mimicry microenvironment in a novel 3D hollow fibre bioreactor. *Experimental Hematology*; **43**; 2015; p S51.
- E14** Fuentes-Garí M., **Misener R.**, Georgiadis M. C., Kostoglou M., Pistikopoulos E. N., Panoskaltzis N., Mantalaris A. Chemotherapy Optimization in Leukemia: Selecting the Right Mathematical Models for the Right Biological Processes. *9th IFAC Symposium on Biological & Medical Systems*. Vol. 48 of *IFAC-PapersOnLine*. Berlin, DE; 2015; pp 534 - 539.
- E13** Allenby M. C., Tahlawi A., Brito Dos Santos S., **Misener R.**, Hwang Y., Panoskaltzis N., Mantalaris A. Development of a hematopoietic microenvironment for the production of red blood cells (RBCs) in a novel 3D hollow fibre bioreactor. *Tissue Engineering Part A*. 21, 2015; pp S15 - S16.
- E12** Savvopoulos S. V., **Misener R.**, Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Global Sensitivity Analysis for a Dynamic Model of Chronic Lymphocytic Leukemia Disease Trajectories. In Gernaey et al. (Eds), *12th International Symposium on Process Systems Engineering*. Vol. 37 of *Computer-Aided Chemical Engineering*. Copenhagen, DK; 2015; pp 185 - 190.
- E11** Fuentes-Garí M., **Misener R.**, Pefani E., García-Münzer D., Kostoglou M., Georgiadis M. C., Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Cell cycle model selection for leukemia and its impact in chemotherapy outcomes. In Gernaey et al. (Eds), *12th International Symposium on Process Systems Engineering*. Vol. 37 of *Computer-Aided Chemical Engineering*. Copenhagen, DK; 2015; pp 2159 - 2164
- E10** **Misener R.**, Allenby M. C., Fuentes-Garí M., Rende M., Velliou E., Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Optimisation under uncertainty for a bioreactor that produces red blood cells. *J. Tissue Eng. Regen. Med.*; 8; 2014; p 481.
- E09** Fuentes-Garí M., **Misener R.**, García-Münzer D., Velliou E., Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Development and experimental validation of cyclin-based population balance model of the cell cycle in leukaemia cell lines. *J. Tissue Eng. Regen. Med.*; 8; 2014; p 489.
- E08** Velliou E., Brito Dos Santos S., Fuentes-Garí M., **Misener R.**, Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Evolution of an AML model system under oxidative and starvation stress: A comparison between two and three dimensional cultures. *J. Tissue Eng. Regen. Med.*; 8; 2014; p 483.
- E07** Velliou E., Fuentes-Garí M., **Misener R.**, Pefani E., Rende M., Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. A framework for the design, modeling and optimization of biomedical systems. In Eden et al. (Ed.), *Foundations of Computer-Aided Process Design*. Vol. 34 of *Computer-Aided Chemical Engineering*. Cle Elum, WA; 2014; pp 225 - 236.
- E06** **Misener R.**, Chin J., Lai M., Fuentes-Garí M., Velliou E., Panoskaltzis N., Pistikopoulos E. N., Mantalaris A. Robust Superstructure Optimisation of a Bioreactor that Produces Red Blood Cells. In Klemeš, Varbanov, Liew (Ed.), *24th European Symposium on Computer Aided Process Engineering*. Vol. 33 of *Computer-Aided Chemical Engineering*. Budapest, Hungary; 2014; pp 91 - 96.
- E05** Skjäl A., Westerlund T., **Misener R.**, Floudas C. A. A Generalization of Classical α BB Underestimation to Include Bilinear Terms. In Bogle, Fairweather (Ed.), *22nd European Symposium on Computer Aided Process Engineering*. Vol. 30 of *Computer-Aided Chemical Engineering*. London, UK; 2012; pp 1202 - 1206.
- E04** **Misener R.**, Floudas C. A. Global Optimization of Large-Scale Extended and Generalized Pooling Problems: Mixed-Integer Nonlinearly Constrained Models. *Global Optimization Workshop*, Toulouse, FR; 2010; pp 89 - 92.
- E03** **Misener R.**, Gounaris C. E., Floudas C. A. Global Optimization and Parametric Analysis of Large-Scale Extended Pooling Problems. In Pierucci, Ferraris (Ed.), *20th European Symposium on Computer Aided Process Engineering*. Vol. 28 of *Computer-Aided Chemical Engineering*. Naples, IT; 2010; pp 847 - 852.

E02 Misener R., Gounaris C. E., Floudas C. A. Advances In Global Optimization for Standard, Generalized, and Extended Pooling Problems with the (EPA) Complex Emissions Model Constraints. *Foundations of Computer-Aided Process Design*. Breckenridge, CO; 2009; pp 1053 - 1073.

E01 Misener R., Gounaris C. E., Floudas C. A. Multidimensional Piecewise-Affine Approximations for Gas Lifting and Pooling Applications. *Foundations of Computer-Aided Process Design*. Breckenridge, CO; 2009; pp 887 - 896.

COMPUTER SCIENCE WORKSHOP PAPER

W01 Sedgwick R., Goertz J., **Misener R.**, Stevens M, van der Wilk M. [Design of Experiments for Verifying Biomolecular Networks](#). *Machine Learning for Molecules NeurIPS Workshop*, 2020. [Video link](#)

NUMERICAL SOFTWARE & MATHEMATICAL MODELS

The following implementations are primarily written by me. Implementations of my group's optimisation algorithms, i.e. code primarily written by my team, are on our [GitHub](#) account.

NUMERICAL SOFTWARE

S03 Misener R., Floudas C. A. [ANTIGONE](#): Algorithms for coNTinuous / Integer Global Optimization of Nonlinear Equations; 2013. *Commercial through Princeton & [GAMS](#) Development Corp.*

S02 Misener R., Floudas C. A. [GloMIQO](#): Global Mixed-Integer Quadratic Optimizer; 2012. *Commercial through Princeton & [GAMS](#) Development Corp.*

S01 Misener R., Thompson J. P., Floudas C. A. Algorithms for Pooling-problem global Optimization in GEneralized and Extended classes ([APOGEE](#)); 2010. *Freely available tool*

MATHEMATICAL MODELS

M02 Misener R., Floudas C. A. [Generalized Pooling Problem](#). Available from [CyberInfrastructure for MINLP](#); 2011.

M01 Misener R., Gounaris C. E., Floudas C. A. [Extended Pooling Problem with the Summer Time \(EPA\) Complex Emissions Constraints](#). Available from [CyberInfrastructure for MINLP](#); 2010.

PRESS & PUBLICATIONS WRITTEN FOR A GENERAL AUDIENCE

PRESS ABOUT MY RESEARCH TEAM

P3 *Imperial scoops three new Royal Academy of Engineering research chairs*. Imperial News ([link](#)), 2022.

P2 *Schlumberger Collaboration*. Imperial News ([link](#)), Schlumberger Careers News ([link](#)), 2021.

P1 *Decision making under uncertainty*. Imperial Long Read ([link](#)), Online event hosted by Imperial Business Partners ([YouTube](#)), Imperial News ([link](#)), 2021.

WRITTEN BY RUTH

G4 Misener R. Department of Computing MSc student honoured for her joint work with Royal Mail. [Imperial College News](#), 2019.

G3 Misener R. Department of Computing researchers selected to present research in Parliament. [Imperial College News](#), 2019.

G2 Misener R. Christodoulos Achilleus Floudas. *SIAG/OPT Views and News*. **24**(1): 12 - 16, 2016.

G1 Misener R. Deterministic Global Optimisation at CPSE: Models, Algorithms, and Software. Centre for Process Systems Engineering Newsletter, Issue 10, 2014.

KEYNOTE / PLENARY PRESENTATIONS

UPCOMING

K21 Misener R. Betwixt & Between: Intermediate Formulations & Relaxations for Computational Optimisation, *Special Interest Group in Optimization, Gesellschaft für Operations Research e.V., International Conference on Optimization (SIGOPT 2022)*. Plenary. Cottbus, DE, 03/2023.

K20 Biegler L., Misener R. Integration of Data-Driven Techniques in Mathematical Optimization. *Foundations of Computer Aided Process Operations / Chemical Process Control (FOCAPO/CPC)*. Joint keynote. San Antonio, TX, 01/2023.

K19 Misener R. Title TBA. *Workshop on Global Optimization (HUGO)*. Plenary. Szeged, HU, 09/2022.

K18 Misener R. OMLT: Optimization and Machine Learning Toolkit. *Process Systems Engineering (PSE 2021+)*. Keynote. Kyoto, JP, 06/2022.

PAST

K17 Misener R. Computational Mixed-Integer Nonlinear Optimization, *31st European Conference on Operational Research (EURO 2021)*. Semi-plenary. Athens, GR, 07/2021.

K16 Misener R. Numerical approaches to mixed-integer nonlinear optimization, *7th IFAC Symposium on Nonlinear Model Predictive Control (NMPC 2021)*. Plenary. Bratislava, SK, 07/2021. [Video link](#)

K15 Thebelt A., Kronqvist J., Mistry M., Lee R. M., Sudermann-Merx N., Misener R. ENTMOOT: A Framework for Optimization over Ensemble Tree Models. *Virtual AIChE Annual Meeting, Computer & Systems Technology Division (10e)* Plenary. 11/2020. [Video link](#)

K14 Misener R. Mixing analytical and data-driven optimization: Application to the process industries, *30th European Symposium on Computer Aided Process Engineering (ESCAPE 2020)*. Online Plenary. 09/2020. *Joint work with the Computational Optimisation Group*

K13 Misener R. Developing spatial branch & bound solvers, *Oberwolfach MINLP Workshop*. Opening Plenary. Oberwolfach, DE, 06/2019. *Joint work with R Baltean-Lugojan, F Ceccon, M Mistry*

K12 Misener R. Mixed-integer nonlinear optimisation for energy efficiency, *1st International Young Professionals Conference on Process Engineering (YCOPE)*. Plenary. Max Planck Institute, Magdeburg, DE, 03/2019. *Joint work with the Computational Optimisation Group*

K11 Misener R. Gaussian Processes for Hybridizing Analytical & Data-Driven Decision-Making, *AIChE Annual Meeting*. Presentation as a part of [AIChE's 110 Year Celebration](#). Pittsburgh, USA; 10/2018. *Joint work with S Olofsson, J Wiebe, I Cecilio, MP Deisenroth*

K10 Misener R. The pooling problem with a view towards gas transport, *Conference on the Mathematics of Gas Transport*. Plenary. Berlin, DE; 10/2018. *Joint work with R Baltean-Lugojan, F Ceccon, M Mistry*

K09 Misener R., Mitsos A. Process Systems Engineering Optimization: Mixed-Integer Nonlinear Programming & Beyond, *Process Systems Engineering (PSE-2018)*. Joint keynote. San Diego, CA, 07/2018.

K08 Misener R. Optimisation for energy efficiency, *Department of Computing Research Associate Symposium*. Keynote. Imperial, 06/2018. *Joint work with the Computational Optimisation Group*

K07 Misener R. Approximation Algorithms for Process Systems Engineering, *28th European Symposium on Computer Aided Process Engineering (ESCAPE 2018)*. Keynote. Graz, AT, 06/2018. *Joint work with D Letsios, G Kouyialis*

K06 Misener R. Online generation via offline selection of strong linear cuts from QP SDP relaxation, *15th International Conference on Computational Management Science (CMS 2018)*. Semi-plenary. Trondheim, NO, 05/2018. *Joint work with R Baltean-Lugojan, P Bonami, A Tramontani*

K05 Misener R. Online generation via offline selection of strong linear cuts from QP SDP relaxation, *SCIP Workshop*. Plenary. Aachen, DE, 03/2018. *Joint work with R Baltean-Lugojan, P Bonami, A Tramontani*

K04 Misener R. Optimisation under Uncertainty: Engineering & Life, *Royal Academy of Engineering Fellows' Day*. Keynote. London, UK, 02/2018.

K03 Misener R. Optimisation for Gradient Boosted Trees with Risk Control, *Annual Meeting of the Society for Industrial & Applied Mathematics (SIAM), UK & Republic of Ireland Section (UKIE)*. Plenary. Southampton, UK, 01/2018. *Joint work with M Mistry, D Letsios, RM Lee, G Krennich*

Sponsored by the Institute of Mathematics & its Applications (IMA)

K02 Misener R. Designing Energy-Efficient Heat Recovery Networks using Mixed-Integer Nonlinear Optimisation, *16th International Symposium on Experimental Algorithms*. Plenary. London, UK, 06/2017. *Joint work with R Baltean-Lugojan, F Cecon, M Mistry*

K01 Misener R. Making and Healing Blood: An Engineer's Approach, *Royal Academy of Engineering Research Forum*. Keynote. London, UK, 09/2013.

INVITED SEMINARS

S35 Misener R. OMLT: Optimization and Machine Learning Toolkit. Process, Material, & System Modelling Technical Section Meeting, P&G; 04/2022.

Joint work with F Cecon, J Jalving, J Haddad, A Thebelt, C Tsay, C D Laird

S34 Misener R. OMLT: Optimization and Machine Learning Toolkit. Operations Research & Financial Engineering, Princeton University; 03/2022.

Joint work with F Cecon, J Jalving, J Haddad, A Thebelt, C Tsay, C D Laird

S33 Misener R. Between formulations or: How I Learned to Stop Worrying and Love Parameters. Operations Research Centre, MIT; 03/2022.

Joint work with Campos, Cecon, Haddad, Jalving, Kronqvist, Laird, Parpas, Thebelt, Tsay

S32 Misener R. Artificial intelligence approaches towards hybridizing analytical & data-driven decision-making. Department of Chemical Engineering, UT Austin; 09/2021.

Joint work with the Computational Optimisation Group

S31 Misener R. Artificial intelligence approaches towards hybridizing analytical & data-driven decision-making. Department of Chemical Engineering, UC Berkeley ; 08/2021.

Joint work with the Computational Optimisation Group

S30 Misener R. Partition-based formulations for mixed-integer optimization of trained ReLU neural networks. Mathematics, Physics and Machine Learning Seminar Series, Instituto Superior Técnico; Invited by Prof J Mourão; 06/2021.

Joint work with C Tsay, J Kronqvist, A Thebelt, [Video link](#)

S29 Misener R. Partition-based formulations for mixed-integer optimization of trained ReLU neural networks. Machine Learning NeEDS Mathematical Optimization Online Seminar Series; Invited by Prof D Romero; 04/2021.

Joint work with C Tsay, J Kronqvist, A Thebelt, [Video link](#)

S28 Misener R. Partial Lasserre relaxation for sparse Max-Cut. Discrete Optimization Talks; Invited by Profs A Kazachkov & E Khalil; 04/2021.

Joint work with JS Campos, P Parpas, [Video link](#)

S27 Misener R. Approximation algorithms for process systems engineering. Enterprise-wide Optimization Seminar Series, Center for Advanced Process Decision-making, Carnegie Mellon University; Invited by Prof C Gounaris; 03/2021.

Joint work with the Computational Optimisation Group

S26 Misener R. Scoring positive semidefinite cutting planes for quadratic optimization via trained neural networks. School of Mathematics, Cardiff University; Invited by Dr T Oertel; 12/2019.

Joint work with R Baltean-Lugojan, P Bonami, A Tramontani

S25 Misener R. Artificial intelligence approaches towards hybridizing analytical & data-driven decision-making. Institute for Chemical and Bioengineering, ETH Zürich; Invited by Prof P Arosio; 11/2019.

Joint work with the Computational Optimisation Group

S24 Misener R. Artificial intelligence approaches towards hybridizing analytical & data-driven decision-making. Department of Chemical Engineering, McMaster University, Hamilton, Ontario; Invited by Prof K Khan; 10/2019.

Joint work with the Computational Optimisation Group

- S23 Misener R.** Scoring positive semidefinite cutting planes for quadratic optimization via trained neural networks. Department of Mathematics and Statistics, McGill University, Montréal; Invited by Prof H Darmon; 10/2019. *Joint work with R Baltean-Lugojan, P Bonami, A Tramontani*
- S22 Misener R.** Scheduling and rescheduling: Explainability, methods, and industrial applications. Centre de Recherches Mathématiques, Polytechnique Montréal, Montréal; Invited by Prof A Lodi & Prof B Shepherd; 10/2019. *Joint work with JT Bradley, K Cyras, D Letsios, N Page, F Toni*
- S21 Misener R.** Approximation algorithms for process systems engineering. Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh; Invited by Prof L Biegler; 03/2019. *Joint work with D Letsios, G Kouyialis*
- S20 Misener R.** Online generation via offline selection: Low dimensional linear cuts from QP SDP relaxation. Department of Industrial and Systems Engineering, University of Wisconsin, Madison; Invited by Prof J Linderoth; 12/2018. *Joint work with R Baltean-Lugojan, P Bonami, A Tramontani*
- S19 Misener R.** Gaussian Processes for Hybridizing Analytical & Data-Driven Decision-Making. Department of Chemical Engineering, University of Wisconsin, Madison; Invited by Prof V Zavala; 12/2018. *Joint work with S Olofsson, J Wiebe, I Cecílio, MP Deisenroth*
- S18 Misener R.** Gaussian Processes for Hybridizing Analytical & Data-Driven Decision-Making. School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta; 09/2018. *Joint with Olofsson, Wiebe, Cecílio, Deisenroth, Mellichamp Distinguished Lecture*
- S17 Misener R.** Learning-based Cutting Plane Approximation of Quadratic Programming Convex (SDP) Relaxations. Institute of Information Engineering, Automation & Mathematics, Slovak University of Technology, Bratislava; Invited by Prof R Paulen; 09/2018. *Joint work with R Baltean-Lugojan, P Bonami, A Tramontani*
- S16 Misener R.** Lexicographic Optimisation for Rescheduling. LIX, Laboratoire d'Informatique de l'École Polytechnique; Invited by Dr C D'Ambrosio; 07/2018. *Joint work with D Letsios*
- S15 Misener R.** Optimisation for Gradient Boosted Trees with Risk Control. Department of Chemical Engineering, RWTH Aachen, DE; Invited by Prof A Mitsos; 03/2018. *Joint work with M Mistry, D Letsios, RM Lee, G Krennich*
- S14 Misener R.** Optimisation for Gradient Boosted Trees with Risk Control. Mathematical Institute, University of Oxford, UK; Invited by Prof C Cartis; 02/2018. *Joint work with M Mistry, D Letsios, RM Lee, G Krennich*
- S13 Misener R.** Heuristics with Performance Guarantees for the Minimum Number of Matches in Heat Recovery Networks. School of Chemical Engineering & Analytical Science, University of Manchester, UK; Invited by Dr J Li; 02/2018. *Joint work with D Letsios, G Kouyialis*
- S12 Misener R.** Lexicographic Optimization for Rescheduling. Department of Econometrics & Operations Research, Tilburg University, NL; Invited by Prof E de Klerk; 12/2017. *Joint work with D Letsios*
- S11 Misener R.** Lexicographic Optimization for Rescheduling. Royal Mail Data Science Group, UK; Invited by Dr J Bradley; 12/2017. *Joint work with D Letsios*
- S10 Misener R.** Mixed-Integer Nonlinear Optimisation: Energy Efficiency Applications. School of Mathematics, University of Birmingham, UK; Invited by Prof M Kočvara; 11/2016. *Joint work with R Baltean-Lugojan, F Ceccon, M Mistry*
- S09 Misener R.** Mixed-Integer Nonlinear Optimisation: Energy Efficiency Applications. Department of Chemical Engineering, University of Surrey, UK; Invited by Dr E Velliou; 10/2016. *Joint work with R Baltean-Lugojan, F Ceccon, M Mistry*
- S08 Misener R.** Implementing algorithmic advances in mixed-integer nonlinear optimisation. Department of Mathematics, London School of Economics, UK; Invited by Prof G Zambelli; 01/2016.

- S07 Misener R.** Mixed-Integer Nonlinear Optimisation: Energy Efficiency Applications. School of Mathematics, University of Edinburgh, UK; Invited by Dr A Grothey & Prof K McKinnon; 10/2015.
Joint work with F Ceccon, M Mistry
- S06 Misener R.** Stem Cell Bioprocessing under Uncertainty: A Case Study in Optimising Red Blood Cell Production. Centre for Computational Engineering Science, RWTH Aachen, DE; Invited by Prof A Mitsos; 02/2015.
Joint work with the Biological Systems Engineering Laboratory
- S05 Misener R.** Global Optimisation for Process Optimisation. Process Systems Enterprise; London, UK; Invited by Dr P Kleniati; 01/2015.
- S04 Misener R.** Relating MINLP Model Formulations to Algorithmic Solution Strategies. Department of Electronics, Computer Sciences & Systems, University of Bologna, IT; Invited by Prof A Lodi; 06/2014.
- S03 Misener R.** Mixed-Integer Nonlinear Optimization: Foundations and Applications. Department of Computing, Imperial, UK; *Job Talk*; 03/2014.
- S02 Misener R.** Making and Healing Blood: An Engineer's Approach. Department of Chemical Engineering, University of Surrey, UK; Invited by Prof K Kirkby; 01/2014.
Joint work with the Biological Systems Engineering Laboratory
- S01 Misener R.** Novel Global Optimization Methods: Theoretical & Computational Studies on Pooling Problems with Environmental Constraints. Centre for Process Systems Engineering, Imperial, UK; Invited by Prof E Pistikopoulos; 07/2011.
Joint work with CA Floudas

INTERNATIONAL SCHOOLS

- Sc6 Misener R.** Global Optimisation [3 hr lecture]. *Centre for Process Systems Engineering Advanced Optimisation Course*, Imperial, UK; Invited by Prof C Adjiman; 05/2017.
- Sc5 Misener R.** Mixed-Integer Nonlinear Optimisation [2 hr lecture × 10 days]. *Visiting Professor, Vienna Graduate School On Computational Optimization*, Vienna, AT; Invited by Prof G Pflug; 05/2017.
- Sc4 Misener R.** Introduction to Global Optimisation [2 hr lecture]. *Centre for Process Systems Engineering Introduction to Optimisation Course*, Imperial, UK; Invited by Prof C Adjiman; 04/2017.
- Sc3 Misener R.** Introduction to Global Optimisation [2 hr lecture]. *Centre for Process Systems Engineering Introduction to Optimisation Course*, Imperial, UK; Invited by Prof C Adjiman; 05/2016.
- Sc2 Misener R.** Mixed-Integer Nonlinear Optimisation with Nonconvex Nonlinearities [3 hr lecture]. *MINO/ COST Spring School on Mixed Integer Nonlinear Programming and Applications*, Paris, FR; Invited by Dr C D'Ambrosio; 04/2016.
- Sc1 Misener R.** Global Optimisation [2 hr lecture]. *Centre for Process Systems Engineering Advanced Optimisation Course*, Imperial, UK; Invited by Prof C Adjiman; 04/2015.

INVITED CONFERENCE & WORKSHOP PRESENTATIONS [*PRESENTER]

UPCOMING

- I39 Misener R.** Title TBA. *ICML Workshop on Adaptive Experimental Design and Active Learning in the Real World*; Baltimore, MD, 07/2022.
- I38 Ceccon F.***, Jalving J.*, Haddad J., Thebelt A., Tsay C., Laird C. D.†, **Misener R.**† OMLT: Optimization & Machine Learning Toolkit. *32nd European Conference on Operational Research (EURO)*; Espoo, FI, 07/2022. * These authors contributed equally. † These authors contributed equally.

PAST

- I37 Folch J. P.**, Lee R. M., Shafei B., Walz D., Tsay C., van der Wilk M., **Misener R.** Design of flow chemistry experiments using batch Bayesian optimization. *International Online Workshop on Continuous Particle Synthesis and Product Design*; 10/2021.

- I36** Tsay C.*, Kronqvist J., Thebelt A., **Misener R.** Partition-based formulations for mixed-integer optimization of trained ReLU neural networks. *INFORMS Annual Meeting*; Anaheim, USA, 10/2021.
- I35** Kronqvist J.*, Tsay C., **Misener R.** A Hierarchy of Relaxations between Big-M and Convex Hull Formulations. *INFORMS Annual Meeting*; Anaheim, USA, 10/2021.
- I34** Ceccon F., **Misener R.*** Solving the Pooling Problem at Scale with Extensible Quadratic Optimizer GALINI. *INFORMS Annual Meeting*; Anaheim, USA, 10/2021.
- I33** Thebelt A.*, Kronqvist J., Mistry M., Lee R. M., Sudermann-Merx N., **Misener R.** Uncertainty Measures and Hierarchical Acquisition Functions for Tree-based Black-Box Optimization. *INFORMS Annual Meeting*; Anaheim, USA, 10/2021.
- I32** Thebelt A.*, Kronqvist J., Mistry M., Lee R. M., Sudermann-Merx N., **Misener R.** ENTMOOT: A Framework for Optimization over Ensemble Tree Models. *International Conference on Operations Research (OR2021)*; Bern, CH, 09/2021.
- I31** Ceccon F., **Misener R.** GALINI: An Extensible MIQCQP Solver. *Virtual INFORMS Annual Meeting*. 11/2020. [Video link](#)
- I30** Thebelt A., Kronqvist J., Mistry M., Lee R. M., Sudermann-Merx N., **Misener R.** A Framework for Optimization Over Ensemble Tree Models. *Virtual INFORMS Annual Meeting*. 11/2020. [Video link](#)
- I29** Kronqvist J., **Misener R.** A Disjunctive Cut Strengthening Technique for MINLP. *Virtual INFORMS Annual Meeting*. 11/2020. [Video link](#)
- I28** Wiebe J., **Misener R.** A Robust Approach to Warped Gaussian Process-constrained Optimization. *Virtual INFORMS Annual Meeting*. 11/2020. [Video link](#)
- I27** Mistry M., Thebelt A., Letsios D., Kronqvist J. Lee R. M., Krennich G., **Misener R.** Mixed-Integer Convex Nonlinear Optimization with Gradient-Boosted Trees Embedded. *CRM/DIMACS Workshop on Mixed-Integer Nonlinear Programming*, Montréal, CA; Invited by Prof A Lodi; 10/2019.
- I26** Letsios D., Page N., Bradley J., **Misener R.** Bounded job start scheduling under uncertainty: Application to Royal Mail delivery scheduling. *The Operational Research Society Annual Conference (OR61)*. Kent, UK; 09/2019.
- I25** Letsios D., Kouyialis G., **Misener R.** Approximation algorithms for process systems engineering. *9th Foundations of Computer-Aided Process Design*; Copper Mountain, CO, USA; 07/2019.
- I24** Baltean-Lugojan R., Bonami P., **Misener R.**, Tramontani A. Selecting cutting planes for quadratic semidefinite outer-approximation via trained neural networks. *23rd Combinatorial Optimization Workshop*; CNRS Centre Paul Langevin, Aussois, FR; 01/2019.
- I23** **Misener R.** Stem Cell Biomanufacturing under Uncertainty: A Case Study in Optimizing Red Blood Cell Production, *AICHE Annual Meeting*. Presentation as a part of [AIChE's Futures Series](#). Pittsburgh, USA; 10/2018. *Joint work with the Biological Systems Engineering Laboratory*
- I22** Baltean-Lugojan R., **Misener R.***, Bonami P., Tramontani A. Online generation via offline selection of strong linear cuts from QP SDP relaxation. *Operations Research*, Brussels, BE; Invited by Dr T Berthold; 09/2018.
- I21** Ceccon F., **Misener R.** SUSPECT: MINLP Special Structure Detector for Python. *Optimization software, EURO*, Valencia, ES; Invited by Dr T Berthold; 07/2018.
- I20** Baltean-Lugojan R.*, **Misener R.**, Bonami P., Tramontani A. Online generation via offline selection: Low dimensional linear cuts from QP SDP relaxation. *International Symposium on Mathematical Programming*, Bordeaux, FR; Invited by Prof C Cartis; 07/2018.
- I19** Mistry M.*, Letsios D., **Misener R.**, Krennrich G., Lee R. M. Optimization with Gradient-Boosted Trees and Risk Control. *International Symposium on Mathematical Programming*, Bordeaux, FR; Invited by Prof H Mittelmann; 07/2018.

- I18** Letsios D.*, **Misener R.** On Exact Lexicographic Optimization Methods and Approximate Recovery Strategies in Two-Stage Robust Makespan Scheduling. *Computational Integer Programming, International Symposium on Mathematical Programming*, Bordeaux, FR; Invited by Prof D Salvagnin; 07/2018.
- I17** Letsios D.*, Kouyialis G., **Misener R.** Heuristics with Performance Guarantees for the Minimum Number of Matches in Heat Recovery Networks. *6th IMA Conference on Numerical Linear Algebra and Optimization*, Birmingham, UK; Invited by Prof C Cartis; 06/2018.
- I16** Kouyialis G., Letsios D., **Misener R.*** Heuristics with Performance Guarantees for the Minimum Number of Matches in Heat Recovery Networks. *Multiscale Systems Engineering I: In Honor of Prof C A Floudas, AIChE Annual Meeting*, Minneapolis, USA; Invited by Prof E N Pistikopoulos; 10/2017.
- I15** Baltean-Lugojan R., **Misener R.*** Piecewise Parametric Structure in the Pooling Problem – from Sparse Strongly-Polynomial Solutions to NP-Hardness. *Foundations of Computational Mathematics*, Barcelona, ES; Invited by Prof C Cartis & Prof E de Klerk; 07/2017.
- I14** Baltean-Lugojan R., **Misener R.*** Piecewise Parametric Structure in the Pooling Problem – from Sparse Strongly-Polynomial Solutions to NP-Hardness. *15th EUROPT Workshop on Advances in Continuous Optimization*, Montréal, CA; Invited by Prof M Anjos; 07/2017.
- I13** Baltean-Lugojan R., **Misener R.*** Globally Optimising Pooling Problems. *Chris Floudas Memorial Symposium*, Princeton, NJ; Invited by Prof F Boukouvala & Prof C Gounaris; 05/2017.
- I12** Mistry M., **Misener R.*** Integrating Mixed-Integer Optimization and Satisfiability Modulo Theories: Application to Planning and Scheduling. *Foundations of Computer Aided Process Operations*, Tucson, Arizona; Invited by Prof C Maravelias & Dr J Wassick; 01/2017.
- I11** Baltean-Lugojan R.*, **Misener R.** A Parametric Approach to the Pooling Problem. *5th International Conference on Continuous Optimization*, Tokyo, JP; 08/2016.
- I10** Ceccon F., **Misener R.*** Using Functional Programming to recognize Named Structure in an Optimization Problem: Application to Pooling. *5th International Conference on Continuous Optimization*, Tokyo, JP; Invited by Prof V Zavala; 08/2016.
- I09** Ceccon F., **Misener R.*** Using Functional Programming to recognize Named Structure in an Optimization Problem: Application to Pooling. *28th European Conference on Operational Research*, Poznan, PL; Invited by Dr T Berthold; 07/2016.
- I08** Baltean-Lugojan R., **Misener R.*** A Parametric Approach to the Pooling Problem. *Mixed Integer Programming Workshop*, Miami, USA; 05/2016.
- I07** Ceccon F., **Misener R.***. Detecting Pooling Network Structure. *Short Research Announcement at the Oberwolfach MINLP Workshop*, Oberwolfach, DE; 10/2015.
- I06** **Misener R.***, Mistry M. Solving MINLP with Heat Exchangers: Special Structure Detection and Large-Scale Global Optimisation. *22nd International Symposium on Mathematical Programming*, Pittsburgh, PA; Invited by Prof C Floudas; 07/2015.
- I05** **Misener R.*** Deterministic Global Optimisation for Process Optimisation. *Centre for Process Systems Engineering Industrial Consortium Meeting*, Imperial, UK; Invited by Prof N Shah; 12/2014.
- I04** **Misener R.***, Floudas C. A. Special Mathematical Structure Detection and Exploitation with ANTI-GONE. *Global Optimisation Workshop*, London, UK; Invited by Dr P Parpas; 12/2013.
- I03** **Misener R.*** Architecting ANTIGONE: Design Choices and Tradeoffs. *MODAL Workshop on MINLP Solver Technology*, Zuse-Institut Berlin, DE; Invited by Mr A Gleixner; 11/2013.
- I02** **Misener R.***, Floudas C. A. Globally Optimising Process Networks with ANTIGONE: Automatic Recognition and Adaptation Strategies. *COST Workshop on Mixed Integer Nonlinear Programming*, Paris, FR; Invited by Prof L Liberti; 10/2013.

I01 Misener R.*, Floudas C. A. ANTIGONE: A general mixed-integer nonlinear global optimisation framework. *4th International Conference on Continuous Optimization*, Lisbon, Portugal; Invited by Prof A Mitsos; 07/2013.

CONTRIBUTED CONFERENCE & WORKSHOP PRESENTATIONS [***PRESENTER**]

P57 Folch J. P., Tsay C., van der Wilk M., Shafei B., Walz D., Niederle A., **Misener R.** Design of flow chemistry experiments using batch Bayesian optimization. *AIChE Annual Meeting*, Boston, USA; 11/2021.

P56 Tsay C., Kronqvist J., Thebelt A., **Misener R.** Training and Reformulating Neural Network Surrogate Models for Optimization. *AIChE Annual Meeting*, Boston, USA; 11/2021.

P55 Tsay C., Ceccon F., **Misener R.** Formulations and Restrictions for the Pooling and Multiperiod Pooling Problems. *AIChE Annual Meeting*, Boston, USA; 11/2021.

P54 Wiebe J., **Misener R.** ROModel: Modelling Robust Optimization Problems in Pyomo. *AIChE Annual Meeting*, Boston, USA; 11/2021.

P53 Kronqvist J., **Misener R.**, Tsay C. Between steps: Intermediate relaxations between big-M and convex hull formulations. *International Conference on Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR)*, 2021. **Distinguished Paper Award**, [Video link](#)

P52 Wiebe J.*, **Misener R.** ROmodel: A Python Robust Optimization Modeling Toolbox. *31st European Symposium on Computer Aided Process Engineering*, Istanbul, TR, 06/2021. [Video link](#)

P51 Sedgwick R.*, Goertz J., **Misener R.**, Stevens M., van der Wilk M. [Design of Experiments for Verifying Biomolecular Networks](#). *Machine Learning for Molecules NeurIPS Workshop*. 12/2020. [Video link](#)

P50 Wiebe J., Dunlop J., Cecílio I., **Misener R.** A Robust Approach to Warped Gaussian Process-Constrained Optimization. *Virtual AIChE Annual Meeting*; 11/2020. [Video link](#)

P49 Olofsson S.*, **Misener R.** Design of Dynamic Experiments for Model Discrimination Under Uncertainty Using Gaussian Process Surrogate Models. *AIChE Annual Meeting*, Orlando, USA; 11/2019.

P48 Wiebe J.*, Cecílio I., **Misener R.** The robust pooling problem. *29th European Symposium on Computer Aided Process Engineering*, Eindhoven, NL, 06/2019.

P47 Cyras K.*, Letsios D., **Misener R.**, Toni F. Argumentation for Explainable Scheduling. *33rd AAAI Conference on Artificial Intelligence (AAAI-19)*, Hawaii, HI, 01/2019.

P46 Wiebe J.*, Cecílio, I., **Misener R.** Robust Planning and Scheduling for Processes with Equipment Degradation. *AIChE Annual Meeting*, Pittsburgh, USA; 10/2018.

P45 Baltean-Lugojan R., Bonami P., Tramontani A., **Misener R.*** Online Generation Via Offline Selection of Strong Linear Cuts from a Semidefinite Programming Relaxation. *AIChE Annual Meeting*, Pittsburgh, USA; 10/2018.

P44 Wiebe J.*, Cecílio I., **Misener R.** Data-driven optimization of processes with degrading equipment, *3rd PSE@ResearchDayUK*, Imperial, UK, 09/2018.

JW awarded 2nd Presentation Prize (13 entries)

P43 Olofsson S.*, Deisenroth M. P., **Misener R.** Design of Experiments for Model Discrimination Hybridising Analytical and Data-Driven Approaches. *International Conference on Machine Learning (ICML)*, Stockholm, SE; 07/2018. *Long 20 minute presentation*

P42 Olofsson S.*, Deisenroth M. P., **Misener R.** Optimal Design of Experiments for Model Discrimination using Gaussian Process Surrogate Models. *13th International Symposium on Process Systems Engineering*, San Diego, USA; 07/2018.

P41 Wesselhoeft C., Ham D., **Misener R.*** Algorithms for Mixed-Integer Optimization Constrained by Partial Differential Equations. *13th International Symposium on Process Systems Engineering*, San Diego, USA; 07/2018.

- P40** Mistry M., **Misener R.*** Integrating Mixed-Integer Optimisation and Satisfiability Modulo Theories. *AIChE Annual Meeting*, Minneapolis, USA; 10/2017.
- P39** Olofsson S.*, Mehrian M., Geris L., Calandra R., Deisenroth M. P., **Misener R.** Bayesian Multi-Objective Optimisation of Neotissue Growth in a Perfusion Bioreactor Set-Up. *27th European Symposium on Computer Aided Process Engineering*, Barcelona, ES, 06/2017.
- P38** Kouyialis G., Letsios D.*, **Misener R.** Heuristics with Performance Guarantees for the Minimum Number of Matches in Heat Recovery Networks. *Department of Computing Research Associate Symposium*, London, UK; 06/2017.
- DL awarded 2nd Prize, Top Symposium Presenter (10 entries)**
- P37** Baltean-Lugojan R.*, **Misener R.** Piecewise Parametric Structure in the Pooling Problem – from Sparse Strongly-Polynomial Solutions to NP-Hardness. *Computational Management Science*, Bergamo, IT; 05/2017.
- P36** Olofsson S.*, Mehrian M., Geris L., Calandra R., Deisenroth M. P., **Misener R.** Bayesian Multi-Objective Optimisation of Neotissue Growth in a Perfusion Bioreactor Set-Up. *5th Belgian Symposium on Tissue Engineering*, Leuven, BE; 05/2017.
- P35** Baltean-Lugojan R.*, **Misener R.** Piecewise Parametric Structure in the Pooling Problem – from Sparse Strongly-Polynomial Solutions to NP-Hardness. *Mathematical Optimization in the Decision Support Systems for Efficient and Robust Energy Networks Final Conference*, Modena, IT; 03/2017.
- P34** Baltean-Lugojan R., **Misener R.** Deterministic Global Optimization of Large-Scale Pooling Problems Via Topological Branch-and-Bound. *AIChE Annual Meeting*, San Francisco, CA; 11/2016.
- P33** Ceccon F., **Misener R.*** Using Functional Programming to Recognize Named Structure in an Optimization Problem: Application to Pooling. *AIChE Annual Meeting*, San Francisco, CA; 11/2016.
- P32** Kouyialis G.*, **Misener R.** Detecting symmetry in designing heat exchanger networks. *1st PSE@ResearchDayUK*, Imperial, UK, 07/2016.
- P31** Ulmasov D.*, Baroukh C., Chachuat B., Deisenroth M. P., **Misener R.** Bayesian Optimisation with Dimension Scheduling Algorithm: Application to Biological Systems. *26th European Symposium on Computer Aided Process Engineering*, Portorož, SI, 06/2016.
- P30** Mistry M.*, **Misener R.** Solving MINLP with Heat Exchangers: Special Structure Detection and Large-Scale Global Optimisation. *AIChE Annual Meeting*. Salt Lake City, UT, 11/2015.
- P29** Allenby M. C.*, Tahlawi A., Brito Dos Santos S., **Misener R.**, Hwang Y., Panoskaltis N., Mantalaris A. Development of a hematopoietic microenvironment for the production of red blood cells (RBCs) in a novel 3D hollow fibre bioreactor. *TERMIS*. Boston, MA, 09/2015.
- P28** Fuentes-Garí M.*, **Misener R.**, Georgiadis M. C., Kostoglou M., Pistikopoulos E. N., Panoskaltis N., Mantalaris A. Chemotherapy Optimization in Leukemia: Selecting the Right Mathematical Models for the Right Biological Processes. *9th IFAC Symposium on Biological & Medical Systems*. Berlin, DE; 09/2015
- P27** **Misener R.**, Mistry M.* Solving MINLP with Heat Exchangers: Special Structure Detection and Large-Scale Global Optimisation. *13th EUROPT Workshop on Advances in Continuous Optimisation*, Edinburgh, UK; 07/2015.
- P26** **Misener R.***, Fuentes-Garí M., Allenby M. C., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Stem Cell Bioprocessing under Uncertainty: A Case Study in Optimising Red Blood Cell Production. *17th British-French-German Conference on Optimization*. London, UK; 06/2015.
- P25** Savvopoulos S. V.*, **Misener R.**, Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Global Sensitivity Analysis for a Dynamic Model of Chronic Lymphocytic Leukemia Disease Trajectories. *12th International Symposium on Process Systems Engineering*. Copenhagen, DK; 06/2015.

- P24 Misener R.***, Fuentes-Garí M., Velliou E., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Robust Design and Operation of Red Blood Cell Production in a Parallelised Hollow Fibre Bioreactor. *AIChE Annual Meeting*. Atlanta, GA; 11/2014.
- P23** Velliou E., Brito Dos Santos S., Fuentes-Garí M.*, **Misener R.**, Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Towards *in vitro* Optimization of Chemotherapy for Leukaemia Under Environmental Stress: Moving from 2- to 3-Dimensional Cultures. *AIChE Annual Meeting*. Atlanta, GA; 11/2014.
- P22** Fuentes-Garí M.*, **Misener R.**, García-Münzer D., Velliou E., Georgiadis M. C., Kostoglou M., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Towards Personalized Treatments for Leukemia Based on Cell Cycle Heterogeneity: An Experimental/Modeling Approach. *AIChE Annual Meeting*. Atlanta, GA; 11/2014.
- P21 Misener R.***, Fuentes-Garí M., Velliou E., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Robust Design and Operation of Red Blood Cell Production in a Parallelised Hollow Fibre Bioreactor. *INFORMS Annual Meeting*. San Francisco, CA; 11/2014.
- P20** Velliou E., Fuentes-Garí M., **Misener R.***, Pefani E., Rende M., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. A framework for the design, modeling and optimization of biomedical systems. *Foundations of Computer-Aided Process Design*. Cle Elum, WA; 07/2014.
- P19 Misener R.***, Chin J., Lai M., Fuentes-Garí M., Velliou E., Panoskaltis N., Pistikopoulos E. N., Mantalaris A. Robust Superstructure Optimisation of a Bioreactor that Produces Red Blood Cells. *24th European Symposium on Computer Aided Process Engineering*. Budapest, Hungary; 06/2014.
- P18 Misener R.***, Floudas C. A. ANTIGONE: Algorithms for coNTinuous / Integer Global Optimization of Nonlinear Equations. *AIChE Annual Meeting*, San Francisco, CA; 11/2013.
- P17** Fuentes-Garí M.*, Velliou E., **Misener R.**, Britos dos Santos S., Panoskaltis N., Mantalaris A., Pistikopoulos E. N. Towards a Personalised Treatment of Acute Myeloid Leukaemia: The Impact of Considering the Cell Cycle. *AIChE Annual Meeting*, San Francisco, CA; 11/2013.
- P16** Li J.*, Xiao X., **Misener R.**, Floudas C. A. Effective Global Optimization Methods for Total Refinery Planning Operations. *AIChE Annual Meeting*, San Francisco, CA; 11/2013.
- P15** Floudas C. A., **Misener R.*** Globally Optimizing Mixed-Integer Quadratically-Constrained Quadratic Programs: Advances in GloMIQO. *AIChE Annual Meeting*, Pittsburgh, PA; 10/2012.
- P14** Floudas C. A.*, **Misener R.** Globally Optimizing Mixed-Integer Signomial Programs. *AIChE Annual Meeting*, Pittsburgh, PA; 10/2012.
- P13** Floudas C. A.*, **Misener R.** A Global Optimization Framework for Mixed-Integer Signomial Programs. *INFORMS Annual Meeting*, Phoenix, AZ; 10/2012.
- P12** Floudas C. A.*, **Misener R.** Globally Optimizing Mixed-Integer Quadratically-Constrained Quadratic Programs (MIQCQP). *21st International Symposium on Mathematical Programming*, Berlin, DE; 08/2012.
- P11** Floudas C. A.*, **Misener R.** GloMIQO: Global Mixed-Integer Quadratic Optimizer. *European Conference on Operational Research*, Vilnius, Lithuania; 07/2012.
- P10** Floudas C. A.*, **Misener R.** A Framework for Solving Mixed-Integer Quadratically-Constrained Quadratic Programs (MIQCQP). *INFORMS International*, Beijing, China; 06/2012.
- P09 Misener R.***, Floudas C. A. Global Optimization of Mixed-Integer Quadratically-Constrained Quadratic Programs (QCQP) Through Piecewise-Linear and Edge-Concave Relaxations. *AIChE Annual Meeting*, Minneapolis, MN; 10/2011.
- P08** Baliban R.*, Elia J. A., **Misener R.**, Floudas C. A. Global Optimization of Thermochemical-Based Coal, Biomass, and Natural Gas to Liquids Processes Via Logarithmic Partitioning Schemes. *AIChE Annual Meeting*, Minneapolis, MN; 10/2011.

- P07** Li J.*, **Misener R.**, Floudas C. A. Scheduling of Crude Oil Operations Under Uncertainty: A Robust Optimization Framework Coupled with Global Optimization. *AIChE Annual Meeting*, Minneapolis, MN; 10/2011.
- P06** **Misener R.***, Thompson J. P., Floudas C. A. Large-Scale Global Optimization of Generalized and Extended Pooling Problems: Methods and Computational Tools. *AIChE Annual Meeting*, Salt Lake City, UT; 2010.
- P05** **Misener R.***, Floudas C. A. Globally Optimal Nesting of Irregular Shapes into a Limited Resource. *AIChE Annual Meeting*, Salt Lake City, UT; 11/2010.
- P04** Li J.*, **Misener R.**, Floudas C. A. A New Modeling and Global Optimization Approach for Scheduling of Crude Oil Operations. *AIChE Annual Meeting*, Salt Lake City, UT; 11/2010.
- P03** **Misener R.***, Thompson J. P., Floudas C. A. Algorithms and Computational Tools for Globally Optimizing Large-Scale Pooling Problems. *Graduate Student Symposium*, Princeton, NJ; 10/2010.
- P02** **Misener R.***, Floudas C. A. Global Optimization of Large-Scale Extended Pooling Problems with the EPA Complex Emissions Model. *AIChE Annual Meeting*, Nashville, TN; 11/2009.
- P01** **Misener R.***, Gounaris C. E., Floudas C. A. Computational Comparison of Piecewise Linearization Schemes in Gas Lifting and Pooling Operations. *AIChE Annual Meeting*, Philadelphia, PA; 11/2008.

TEACHING

- Operations Research** Imperial
Course Leader Joint with Dr G Casale. Nominated for **2017 Best Teaching for Undergraduates** and finalist for **2018 Best Teaching for Postgraduates**. 2016 –
- Computing for Optimal Decisions** Imperial
Course Leader Joint with Dr P Parpas. Finalist for **2016 Best Innovation in Teaching**, Imperial Student Academic Choice Award. The teaching innovation recognition is due to how frequently I discuss research in the classroom. 2014 –
- Advanced Optimisation Short Course** Imperial
Lecturer Lead the *Global Optimisation* module of the Centre for Process Systems Engineering Short Course for Industry Professionals. 2015, 2016
- Beginning Algebra** Albert C. Wagner Youth Correctional Facility
Volunteer Instructor Team teach Mercer County Community College MAT 033 (Summer 2011; Spring 2012) & MAT 037 (Fall 2010; Spring 2011; Fall 2011) for the Princeton Prison Teaching Initiative. Activities: lecturing, developing worksheets, supervising tutorials, grading. 2010-12
- Design, Synthesis, & Optimization of Chemical Processes** Princeton
Assistant in Instruction Assisted students in modelling the conversion biomass & coal to gasoline for the capstone undergraduate Chemical Engineering process design course. Led tutorials covering Aspen & GAMS software. Received **Excellence in Teaching Award** from the School of Engineering & Applied Sciences. Fall 2009
- Chemical & Biological Engineering Laboratory** MIT
Teaching Assistant Advised a team of students in modelling a biological reactor using computational fluid dynamics with the software package FLUENT. Spring 2007
- Introduction to Chemical Engineering** MIT
Grader Reviewed student problem sets. Fall 2004 & 2005

RESEARCH MENTORING FOR RESEARCH FELLOWS

In the UK, *Research Fellow* is intermediate between *Postdoctoral Associate* and *Lecturer* (Assist Prof). I collaborate with research fellows and assist in developing their independent research careers.

CURRENT

Dr Calvin Tsay

2020-24

Funding EPSRC David Clarke Postdoctoral Fellowship, Imperial College Research Fellowship
Awarded Distinguished Paper Award at CPAIOR 2021

COMPLETED

Dr Jan Kronqvist 2019-21
Funding Royal Society Newton International Fellowship, Swedish Cultural Foundation in Finland
Awarded Distinguished Paper Award at CPAIOR 2021, Selected to present in Parliament as part of the 2021 STEM for Britain competition ([Video link](#))
Now Assistant Professor at KTH Royal Institute of Technology

RESEARCH MENTORING FOR POSTDOCTORAL ASSOCIATES

CURRENT

Dr Chrysoula Kappatou 2020-
Contributing to the Eli Lilly / EPSRC partnership.

COMPLETED

Dr Richard Oberdieck 2015-16
Contributed to the U Ψ^2 EPSRC project. Primary supervisor was Prof E Pistikopoulos.
Now Technical Account Manager, Gurobi.

Dr Dimitrios Letsios 2016-19
Contributed to the U Ψ^2 EPSRC project.
Awarded 2nd Presentation Prize at the 2017 Department of Computing Research Associate Symposium, Best (Innovative) Demo at AAMAS 2020
Now Lecturer (Assistant Professor) in the Department of Informatics, Kings College London.

Dr Kristijonas Cyras 2017-20
Contributed to the ROAD2H EPSRC project. Primary supervisor was Prof F Toni. I contributed to the optimisation side of Dr Cyras' work.
Awarded Best (Innovative) Demo at AAMAS 2020
Now AI Researcher at Ericsson.

Dr Miten Mistry 2020
Contributed to the ROAD2H EPSRC project.
Now minimax labs

Dr Juan Campos Salazar 2018-20
Contributed to the GALINI EPSRC project.

Dr Francesco Ceccon 2021
Contributed to the GALINI EPSRC project.
Now Co-Founder, Auclantis

RESEARCH MENTORING FOR PHD CANDIDATES

CURRENT

Alexander Thebelt 2019-
Funded by BASF.
Awarded 1st Poster Prize at the 2019 CPSE Annual Meeting.

Ruby Sedgwick 2019-
Funded by the EPSRC CDT AI4Health. Co-supervisor with Prof M Stevens (Department of Materials).

James Odgers 2020-
Funded by the Eli Lilly / EPSRC partnership. Co-supervisor with Dr Sarah Filippi (Department of Mathematics).

Jose Folch 2020-
Funded by BASF & the EPSRC CDT StatML. Co-supervisor with Dr Mark van der Wilk.

Shiqiang Zhang 2021-
Funded by an Hans Rausing Scholarship.

COMPLETED

IMPERIAL DEPARTMENT OF COMPUTING

Dr Georgia Kouyialis 2014-18
Exploiting Symmetry in Mixed-Integer Nonlinear Optimisation. Funded by EPSRC Doctoral Training Account Studentship.

Awarded 3rd prize for 1st year PhD students in the 2015 Departmental Google Poster Competition, FOCAPO/CPC 2017 Travel Award, 1st Poster Prize at the 2017 PSE@ResearchDayUK, 2nd Poster Prize at the 2017 CPSE Annual Meeting, 1st Poster Prize at the UK/Ireland Annual SIAM Meeting.
Now Data Science Consultant at Dataiku.

Dr Radu Baltean-Lugojan 2015-19
Exploiting Structure in Nonconvex Quadratic Optimisation. Funded by EPSRC Doctoral Training Account Studentship.

Awarded 2nd prize for 1st year PhD students in the 2016 Departmental Google Poster Competition, 2017-18 IBM PhD Fellowship
Now Quant Trader/Researcher at B2C2.

Dr Simon Olofsson 2016-20
Gaussian Processes for Hybridisation of Analytical and Data-Driven Approaches for Design of Experiments. Funded by ModLife (EU H2020 675251).

Awarded Best Quality Poster for 2nd year PhD students in the 2018 Departmental Google Poster Competition. Selected to present in Parliament as part of the 2019 STEM for Britain competition.
Now Software Engineer at Facebook.

Dr Miten Mistry 2015-20
Branching strategies for mixed-integer programs containing logical constraints and decomposable structure. Funded by HiPEDs EPSRC Centre for Doctoral Training.

Awarded 2015 Donald Davies Memorial Prize for MEng thesis excellence. Selected to present in Parliament as part of the 2019 STEM for Britain competition.
Now minimax labs.

Francesco Ceccon 2016-21
Funded by the EPSRC.
Now Co-Founder, Auclantis.

Johannes Wiebe 2017-
Funded by Schlumberger & HiPEDs EPSRC Centre for Doctoral Training.
Awarded 2nd Presentation Prize at the 2018 PSE@ResearchDayUK, 3rd Poster Prize at the 2019 CPSE Annual Meeting.
Now Flexciton

IMPERIAL DEPARTMENT OF CHEMICAL ENGINEERING

Dr María Fuentes-Garí 2012-15
Population Balance Model of the Leukaemia Cell Cycle for Optimising Chemotherapy Treatments; Supervisors: Prof A Mantalaris and Prof E Pistikopoulos, we collaborated on cell cycle modelling.
Now Senior Consultant at Process Systems Enterprise.

Dr Symeon Savvopoulos 2013-18
Mathematical Modelling of Chronic Lymphocytic Leukaemia; Supervisors: Prof A Mantalaris and Prof E Pistikopoulos, our collaboration was on Modelling Disease Trajectories for CLL.
Now Postdoctoral associate at KU Leuven.

RESEARCH MENTORING FOR MASTERS & UG PROJECT STUDENTS

Miten Mistry	MEng, 2014-15
Thesis published in <i>Computers & Chemical Engineering</i> (J25).	
MM awarded 2015 Donald Davies Memorial Prize for MEng thesis excellence	
Balarabe Ogbeha	BEng, 2014-15
Francesco Ceccon	MSc, 2015
Thesis published in <i>AIChE Journal</i> (J26).	
Jiaying Li	MSc, 2015
Doniyor Ulmasov	MSc, 2015
Joint with Dr M P Deisenroth.	
Collaboration with Dr B Chachuat and Dr C Baroukh. Thesis published at <i>ESCAPE</i> (E17).	
Chia (Joel) Choo	MRes Project, 2015
Joint with Dr L Nardi and Prof P Kelly.	
Melinda Chan	MSc, 2016
Karlson Lee	MSc, 2016
Joint with Dr A Faisal.	
Pierre Thary	MSc, 2016
Chase Hellemans	MEng, 2016-17
Jakub Grzegorek	MEng, 2016-17
Pingchuan Ma	MSc Independent Study Option, 2017
Christian Wesselhoeft	MSc Independent Study Option & MSc thesis, 2017
Joint with Dr D Ham. Thesis published at <i>PSE</i> (E22).	
CW awarded 2017 Winton Capital Applied Computing MSc Project Prize	
Anna Collins	Undergraduate Research Opportunities Programme, 2017, 2018
Joint with Prof F Toni.	
Julius Hense	Undergraduate project, 2017-18
Natasha Page	MSc, 2018
Thesis published at <i>COCOA</i> (C03) & in the <i>Journal of Scheduling</i> (J45).	
NP awarded <i>Runner up</i> , 2019 May Hicks Award from the Operational Research Society	
Michael Radigan	MEng, 2017-18
Sarah Wang	MSc, 2018
Shudian Zhao	MSc, 2018
Chun (Nick) Li	BEng, 2018-19
Kunlong Chen	MSc Independent Study Option, 2019
Suraj G	MEng, 2018-19
Thesis published in the <i>Journal of Scheduling</i> (J45).	
SG awarded 2019 NewVoice Media Prize for Computing MEng thesis excellence	
Chun Li	BEng, 2018-19
Abigail Annkah	MSc, African Institute for Mathematical Sciences, 2019
Cornelius Braun	MSc, 2022
Jiaqi Zhao	MSc, 2022
Venus Cheung	MSc, 2022

PRIOR ASSISTANCE IN MENTORING

Final-Year Undergraduate Research Project Supervision

Imperial: Karan Gupta, Clara Hedegaard, Eleanor Shead, Thomas Wiggins; joint with Prof A Mantalaris. Thesis of KG & TW published in *AIChE Journal* (J32), 2013. *Princeton*: Philip Miller; joint with Prof C A Floudas, 2011-2012

Habib Adebisi Abubakar Joint with Prof C Adjiman. MSc, 2013-14

Nikolaos Stefanopoulos Joint with Prof A Mantalaris and Prof E Pistikopoulos. MSc, 2013-14

FINANCIAL SUPPORT SECURED

FELLOWSHIPS

BASF/Royal Academy of Engineering Research Chair	2022 - 2027
Title: <i>Data-Driven Optimisation</i> ; £216k (PI)	
Engineering & Physical Sciences Research Council Early Career Fellowship	2017 - 2022
Title: <i>GALINI: Global ALgorithms for mixed-Integer Nonlinear optimisation of Industrial systems</i> Software development for novel engineering research; Includes 6 years postdoc funding; £984k (PI)	
Royal Academy of Engineering Research Fellowship	2012 - 2017
Support for engineers to develop an academic research career; £539k (PI)	
Imperial College Junior Research Fellowship	2012 - 2015
Sustain early career researchers (declined); £114k (PI)	
USA National Science Foundation Graduate Research Fellowship	2007 - 2012
Support for graduate students in STEM; \$120k (PI)	
Princeton University Gordon Y. S. Wu Fellowship	2007 - 2009
\$12k	

FELLOWSHIPS TO MY TEAM MEMBERS

EPSRC David Clarke Postdoctoral Research Fellowship	2020 - 2023
Fellow Dr C Tsay develops his independent research and collaborates with my team; £351k	
Imperial College Research Fellowship	2020 - 2024
Fellow Dr C Tsay develops his independent research and collaborates with my team; £195k	
Newton International Fellowship from the Royal Society	2019 - 2021
Fellow Dr J Kronqvist developed his independent research and collaborated with my team; £99k	
Prognosis for Fault Diagnosis	2017 - 2021
EPSRC Industrial CASE Studentship from Schlumberger to PhD student J Wiebe; £27.5k	
Cutting Planes for Global Optimisation	2017 - 2018
IBM Fellowship to PhD student R Baltean-Lugojan; £25k	

GRANTS

Data-driven optimization of hierarchical systems	2022 - 2026
BASF. 1 PhD studentship (part-funded with the StatML CDT); £115k (PI)	
ADOPT: Advancing optimisation technologies	2022 - 2026
EPSRC. Prof B Chachuat from Imperial Chemical Engineering is PI. To RM: 24 months postdoctoral funding; £1.318M (coI)	
Time-Indexed, Batch Bayesian Optimization for Flow Chemistry	2020 - 2024
BASF. 1 PhD studentship (part-funded with the StatML CDT); £104k (PI)	
Transforming synthetic drug manufacturing: novel processes, methods & tools	2019 - 2027
EPSRC Prosperity Partnership with Eli Lilly. Prof C Adjiman from Imperial Chemical Engineering is PI. To RM: 3 years postdoctoral funding, 4 years PhD funding; £4.182M (coI)	
Modern Statistics and Statistical Machine Learning at Imperial & Oxford	2019 - 2027
EPSRC Centre for Doctoral Training. Prof A Gandy from Imperial Maths is PI. I am the Department of Computing coI and an <i>Industry Liaison</i> ; £6.159M (coI)	
Global optimisation with ensemble machine learning models	2019 - 2022
BASF. 1 PhD studentship; £270k (PI)	
Digital Media Data Analytics	2018 - 2019
Innovate UK (TS/R018537/1). Investigators: Dr A Field (PI), Dr M P Deisenroth, Dr R Misener (coI). To DoC: 1 year postdoctoral funding; £117k (coI)	
BASF Research Project	2017
BASF. To RM: 4.2 months PhD funding; £40k (PI)	
ROAD2H: Resource Optimisation, Argumentation, Decision Support & Knowledge Transfer to Create Value via Learning Health Systems	2017 - 2020
EPSRC EP/P029558/1. Investigators: Prof A Darzi (PI), Dr K Chalkidou, Dr V Curcin, Prof B Delaney, Dr R Li, Dr J Marti, Dr B Marovic, Dr R Misener (coI), Mr J Symons, Prof F Toni (Computing)	

PI). To FT & RM: 3 years postdoctoral funding; £1.516M (coI)

Parallelising Mixed-Integer Optimisation: Energy Efficiency Applications 2017 - 2018
EPSRC First Grant Scheme. To RM: 1 year Research Associate Funding, 3 hours per week; £101k (PI)

ModLife 2015 - 2019
EU H2020 675251. Investigators: Prof A Mantalaris (PI), Dr R Misener (coI), European Commission (H2020-MSCA-ITN-2015); To RM: 3 years PhD funding & 5 hours per week; £507k (coI)

SyMBioSys: Systematic Models for Biological Systems Engineering 2015 - 2019
EU H2020 675585. Investigators: Prof A Mantalaris (PI), Dr R Misener (coI), Dr N Panoskaltzis, European Commission (H2020-MSCA-ITN-2015); To RM: 5 hours per week; £507k (coI).

U Ψ ²: Uncertainty-Aware Planning and Scheduling in the Process Industries 2015 - 2019
EPSRC EP/M028240/1. Investigators: Dr V Dua, Dr R Misener (coI), Prof L Papageorgiou (PI), Dr P Parpas (Imperial PI), Dr E Pistikopoulos, Dr W Wiesemann, EPSRC; To RM: 3.5 years RA funding & 3.8 hours per week; £765k (coI)

INTERNAL FUNDING

Data Science Institute Seed Funding in Probabilistic Modelling, £20k (PI) 2018

THESIS COMMITTEES

HABILITATION À DIRIGER DES RECHERCHES (2 EXTERNAL)

Dr Amélie Lambert	École doctorale Sciences des Métiers de l'Ingénieur	11/2021
<i>Exact solutions of polynomial programs through quadratic convex reformulations</i>		
Dr Claudia D'Ambrosio	Université Paris 13	07/2018
<i>Solving well-structured MINLP problems</i>		

PHD (5 EXTERNAL, 7 INTERNAL)

Dr Chrysoula Kappatou	RWTH Aachen	11/2020
<i>Dynamic Optimization Strategies for Monoclonal Antibody Production</i>		
Dr Mohammad Mehrian	Université de Liège	01/2019
<i>Development and optimization of in silico models of 2D cell expansion and 3D neotissue formation in the context of tissue engineering therapy design and translation</i>		
Dr Jean Kossaiifi	Imperial	11/2018
<i>Machine learning methods for face modelling and analysis in-the-wild</i>		
Dr Jan Kronqvist	Åbo Akademi University	09/2018
<i>Polyhedral Outer Approximations in Convex Mixed-Integer Nonlinear Programming</i>		
Dr Robert Walecki	Imperial	06/2018
<i>Structured Machine Learning Methods for Automated Analysis of Facial Expressions</i>		
Dr Styliani Avraamidou	Imperial	02/2018
<i>Mixed-Integer Multi-level Optimization through Multi-Parametric Programming</i>		
Dr Ahmadreza Marandi	University of Tilburg	12/2017
<i>Aspects of Quadratic Optimization: Nonconvexity, Uncertainty, and Applications</i>		
Dr Juan Campos Salazar	Imperial	11/2017
<i>A multigrid approach to SDP relaxations of sparse polynomial optimization problems</i>		
Dr Fabian Rigterink	University of Newcastle	05/2017
<i>Pooling Problems: Advances in Theory and Applications</i>		
Dr Nikos Diangelakis	Imperial	03/2017
<i>Model-based multi-parametric programming strategies towards the integration of design, control and operational optimization</i>		
Dr Carlos Perez Galvan	University College London	02/2017
<i>Global Optimisation for Dynamic Systems using Novel Overestimation Reduction Techniques</i>		

Dr Tiberiu Chis	Imperial	04/2016
<i>Performance modelling with adaptive hidden Markov models and discriminatory process sharing queues</i>		
Dr Ioana Nascu	Imperial	04/2016
<i>Advanced multiparametric optimization and control studies for anaesthesia</i>		

PROFESSIONAL SERVICE

LEADERSHIP IN MY RESEARCH COMMUNITY

Vice Chair, INFORMS Optimization Society	2020 - 21
<i>I am the Vice Chair for Computational Optimization & Software</i>	
Member, GAMS Advisory Board	2018 -
<i>Provide advice to the GAMS Development Corporation.</i>	
Programming Coordinator, AIChE Computing & Systems Technology Division	2018 - 21
<i>I am 10C (Systems & Process Operations) programming coordinator for 2021. For the years 2019 - 20, I assisted the current programming coordinator.</i>	
Director, AIChE Computing & Systems Technology Division	2016 - 18
<i>This is an elected post which several people hold simultaneously. During my tenure, I (i) overhauled the Student Travel Award, (ii) created an online Poster Kiosk to increase poster session prestige, (iii) initiated the Software Tools & Implementations session at the annual meeting, and (iv) reworked the Student Presentation Award process.</i>	
Management Committee Member, EU COST Action TD1207	2016 - 17
<i>Mathematical Optimization for Efficient & Robust Energy Networks</i>	

EDITORIAL WORK

<i>Associate Editor, INFORMS Journal on Computing</i>	2019 -
<i>Area: Design & Analysis of Algorithms, led by Prof A Lodi</i>	
<i>Associate Editor, Optimization and Engineering</i>	2017 -
<i>Editorial Board, EURO Journal on Computational Optimization</i>	2021 -
<i>Editorial Board, Computers & Chemical Engineering</i>	2018 -
<i>Previously: Associate Editor 2020-22</i>	
<i>Editorial Board, Journal of Global Optimization</i>	2018 - 20
<i>Editorial Board, Mathematical Programming B</i>	2018 - 21
<i>Member, EPSRC Peer Review College</i>	2017 -

CONFERENCE & SEMINAR ORGANISATION

Imperial Mixed-Integer Nonlinear Optimization Workshop (held virtually)	2021
<i>Joint with Prof M Anjos, Dr P Belotti, Dr J Kronqvist</i>	
Dagstuhl Seminar on <i>Algorithms for Mixed-Integer Nonlinear Optimization</i> (18081)	2018
<i>Joint with Dr P Bonami, Dr A Gleixner, Prof J Linderoth</i>	
Organise the Imperial Centre for Process Systems Engineering Seminar Series	2015; 2016; 2020
Organising Committee: 17 th British-French-German Conference on Optimisation	2015

PROGRAM COMMITTEE MEMBERSHIPS

35 th AAAI Conference on Artificial Intelligence	AAAI 2021
30 th European Conference on Operational Research	EURO 2019
<i>Co-chair of the Software for Optimization stream</i>	
Integer Programming and Combinatorial Optimization (CORE A)	IPCO 2019
Foundations of Computer-Aided Process Design	FOCAPD 2019
<i>Chair of the FOCAPD 2019 International Subcommittee</i>	
Mixed-Integer Programming Workshop	MIP 2018
Process Systems Engineering	PSE 2018
<i>Co-chair of the PSE 2018 Optimization Methods & Computational Tools theme</i>	
EUROPT Workshop on Advances in Continuous Optimization	EUROPT 2017, 18, 19
Computational Management Science	CMS 2017

European Symposium on Computer Aided Process Engineering	ESCAPE 2016-18, 21
6 th INFORMS Optimization Society Conference	IOS 2016

SESSIONS CHAIRED AT MAJOR INTERNATIONAL CONFERENCES

Session Co-Chair, Software Tools and Implementations for Process Systems Engineering	AIChE 2021
Session Co-Chair, Interactive Session: Systems and Process Operations	AIChE 2021
Session Co-Chair, Advances in Optimization II	AIChE 2020
Session Co-Chair, CAST Director's Student Presentation Award Finalists	AIChE 2018
Session Co-Chair, Advances in Optimization Under Uncertainty	AIChE 2018
Session Chair, Optimization Methods & Computational Tools 1	PSE 2018
Session Co-Chair	ESCAPE 2018
Session Co-Chair, Advances in Optimization I	AIChE 2017
Session Chair, In memory of Christodoulos A. Floudas I, II, & III	EUROPT 2017
Session Co-Chair, Enabling Technologies I & II	FOCAPO 2017
Session Chair, Software Tools and Implementations for Process Systems Engineering	AIChE 2016
Session Co-Chair, Process Design II	AIChE 2016
Session Chair, Advances in Deterministic Global Optimization	ICCOPT 2016
Session Chair, Modelling, Numerical analysis, Simulation and Optimization	ESCAPE-26 2016
Session Chair, Software Tools and Implementations for Process Systems Engineering	AIChE 2015
Session Chair, Advances in Global Optimisation	ISMP 2015
Session Co-Chair, Modelling & Simulation	PSE-2015/ESCAPE-25 2015
Session Co-Chair: Supply Chain Optimization; Planning & Scheduling II	AIChE 2014
Invited Session Chair	INFORMS 2014
Poster Session Co-Chair	FOCAPD 2014

OTHER PARTICIPATION

<i>Committee Chair, Student Paper Prize, INFORMS Optimization Society</i>	2021
<i>Award Committee Member, Best Paper, Journal of Global Optimization</i>	2018
Amazon Supply Chain Optimization Summit	09/10/2017
EPSRC Operational Research Theme Day	15/09/2015

DEPARTMENTAL & COLLEGE SERVICE

<i>Member, Departmental Hiring Committee</i>	2022
<i>Staff Ambassador for Women, Department of Computing</i>	2022 -
<i>Member, Departmental Promotions Committee</i>	2021
<i>Member, Energy Futures Laboratory Technical Working Group</i>	2017 -
<i>Member, Department of Computing Equality, Diversity & Education Committee</i>	2017 -
<i>Member, Departmental Management Committee</i>	2016 - 2018

PEER REVIEW

ADCHEM, AIChE Journal, Chemical Engineering Research & Design, Computational Optimization & Applications, Computers & Chemical Engineering (**Top Reviewer, 2013, Top 10% in reviews completed, 2014 - 2015 & 2016 - 2017**), Computers & Operations Research, European Journal of Operational Research, Fuel, Industrial & Engineering Chemistry Research, International Conference on Machine Learning, Journal of Global Optimization, Journal of Optimization Theory & Applications, Management Science, Mathematical Programming (A, B & C), Operations Research, Operations Research Letters, Optimization Letters, SIAM Journal on Optimization

COMMUNITY OUTREACH & SERVICE

Panelist, WISDOM (women's forum) at the 31 st European Conference on Operational Research	2021
Speed mentoring event for AnitaB.org at the Twitter London office	2018
Voice of the Future, pose questions to Ministers and scientific advisers in London Parliament	2016
Interviewed for a short film highlighting RAEng research activities	2015, 17
Panel Discussion Chair at the 1 st ACM-W UK Inspire Celebration of Women in Computing	2015
Lecture at the Engineering Summer School for Girls	2015

Organise a booth at Imperial Festival highlighting the BSEL Blood Factory	2013, 15
Give public laboratory tours for the Biological Systems Engineering Laboratory	2012 - 2014
Teach Beginning Algebra at ACW Youth Correctional Facility	2010 - 2012
MIT Educational Counsellor; interview prospective MIT students	2007 - 2012
Co-facilitator and program participant at MIT LeaderShape	2006 - 2007

AFFILIATIONS

<i>Senior Member</i> , American Institute of Chemical Engineers	AIChE 2008 -
<i>Member</i> , British Computer Society	BCS 2017 -
Chartered Engineer	CEng 2019 -
Fellow	FBCS 2020 -
<i>Member</i> , Centre for Process Systems Engineering	CPSE 2014 -
I am CPSE “Friend” to ExxonMobil, i.e. I enable CPSE/XOM connections	
<i>Academic Fellow</i> , Data Science Institute	DSI 2018 -
<i>Member</i> , Institute for Operations Research & Management Sciences	INFORMS 2014 -
<i>Member</i> , Tau Beta Pi – Engineering Honor Society	TBP 2007 -
The top 20% of MIT Engineering Undergraduates are eligible for TBP	