

CURRICULUM VITAE, DR RAPHAEL ANDREAS HAUSER

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CIVIC DETAILS:

- ◇ Married, two children.
- ◇ British and Swiss citizenship.

EDUCATION:

- ◇ 1995-2000: CORNELL UNIVERSITY, School of Operations Research & Industrial Engineering: Ph.D. in Operations Research. Supervisor: Prof. Michael J. Todd. Thesis: "Search Directions for Self-Scaled Conic Programming". Major in mathematical programming, minors in computer science and applied probability.
- ◇ 1989-1993: SWISS FEDERAL INSTITUTE OF TECHNOLOGY (ETH), Department of Mathematics: Dipl. Math. ETH. Thesis supervisor: Prof. Corneliu Constantinescu. Specialisation areas: analysis, geometry, algebra, theoretical physics.

EMPLOYMENT:

- ◇ June 2006 – present: UNIVERSITY OF OXFORD, England. Reader (comparable to U.S. Associate Professorship) in Mathematical Programming at Oxford University Computing Laboratory (OUCL).
- ◇ Sept 2001– May 2006: UNIVERSITY OF OXFORD, England. University Lecturer (comparable to U.S. Assistant Professorship) in Numerical Analysis at Oxford University Computing Laboratory (OUCL).
- ◇ Sept 2001–present: PEMBROKE COLLEGE OXFORD, England. Tanaka Fellow in Applied Mathematics, Senior Mathematics Tutor.
- ◇ Aug 1999–Aug 2001: UNIVERSITY OF CAMBRIDGE, England. Postdoctoral Research Associate at the Department of Applied Mathematics and Theoretical Physics (DAMTP).

ESTEEM INDICATORS

- ◇ Associate Editor of SIAM Journal on Optimization.
- ◇ Member of the FoCM Council.
- ◇ 2005 SIAM Optimization Prize (see awards section below).

AWARDS

- ◇ Oxford University Teaching Award, 2007.
- ◇ 2005 SIAM Activity Group on Optimization Prize for the paper, "The Nesterov-Todd Direction and Its Relation to Weighted Analytic Center" (Foundations of Computational Mathematics, 1-40, 2004).
- ◇ 2000 SIAM Student Paper Prize for the paper "Target Directions for Primal-Dual Interior-Point Methods for Self-Scaled Conic Programming".

RESEARCH INTERESTS

- ◇ NUMERICAL OPTIMIZATION: Symmetric cone programming, robust optimisation, interior-point methods, subgradient algorithms, barrier functions, condition numbers, complexity theory.
- ◇ APPLIED PROBABILITY: Probabilistic analysis of optimization algorithms, the longest common subsequence problem, operations research applications.
- ◇ MATHEMATICAL FINANCE: Optimisation models in finance, algorithmic trading strategies, robust risk-management.

SKILLS

- ◇ Matlab, C++, Latex.
- ◇ Quasi-native fluency in German, English and French. Intermediate level fluency in Italian, Russian, Spanish and Portuguese.

PUBLICATIONS

- ◇ F. Cucker, M. Lotz and R.A. Hauser. “Adversarial Smoothed Analysis”, submitted November 2008.
- ◇ R.A. Hauser. “A New Approach to Yakubovich’s s-Lemma”. Numerical Analysis Group Research Report NA-07/06, Oxford University Computing Laboratory, 2007. (Under second round of review)
- ◇ C. Cartis and R.A. Hauser. “A new perspective on the complexity of interior point methods for linear programming”. Numerical Analysis Group Research Report NA-07/05, Oxford University Computing Laboratory. Submitted 2008.
- ◇ C. Dürringer, R.A. Hauser and H. Matzinger. “Upper bounds on the mean curve in the LCS problem”. *Stochastic Processes and their Applications* 118 (2008), 629–648.
- ◇ R.A. Hauser and T. Müller. “Conditioning of random conic systems under a general family of input distributions”, to appear in *Found. Comput. Math.*
- ◇ R.A. Hauser and J. Nedić. “On the relationship between convergence rates of discrete and continuous dynamical systems”, *SIAM J. Optim.* 18 (2007), no. 1, 52–64.
- ◇ A. Argyriou, R. Hauser, Ch. Micchelli and M. Pontil. “A DC-programming algorithm for kernel selection”. Proceedings of ICML 2006.
- ◇ N. Gupta, R. Hauser, N. Johnson. “Deducing the multi-trader population driving a financial market”. *Proceedings of SPIE: Complex Systems*. The International Society for Optical Engineering. Brisbane, Australia. 2005
- ◇ R.A. Hauser, S. Martinez and H. Matzinger. “Large deviations based upper bounds on the expected relative length of longest common subsequences”, *Advances in Applied Probability* 38 (3), September 2006.
- ◇ E. Amaldi, P. Belotti and R. Hauser. “A randomized algorithm for the MaxFS problem”. Integer Programming and Combinatorial Optimization: 11th International IPCO Conference, Berlin, Germany, June 8-10, 2005. Proceedings *Lecture Notes in Computer Science*, Volume 3509 / 2005. Editors: Michael Jünger, Volker Kaibel. Springer-Verlag GmbH, ISSN: 0302-9743.
- ◇ N. Gupta, R. Hauser and N. Johnson. “Forecasting Financial Time Series Using an Artificial Market Model”. WEHIA 2005, conference proceedings.
- ◇ N. Gupta, R. Hauser and N. Johnson. “Using Artificial Market Models to Forecast Financial Time-Series”. Workshop on Economic Heterogeneous Interacting Agents 2005. Essex, United Kingdom.
- ◇ R.A. Hauser and E. Amaldi. “Boundedness Theorems for the Relaxation Method”. *Math of OR* 30 (2005), no. 4, 939–955.
- ◇ R.A. Hauser and J. Nedić. “The continuous Newton-Raphson method can look ahead”. *SIAM J. Optim.* 15 (2005), no. 3, 915–925.
- ◇ D. Cheung, F. Cucker and R.A. Hauser. “On Tail Decay and Moment Estimates of a Condition Number for Random Linear Conic Systems”. *SIAM J. Optim.* 15 (2005), no. 4, 1237–1261.

- ◇ R.A. Hauser. “The Nesterov–Todd direction and its relation to weighted analytic centers”. *Found. Comput. Math.* 4 (2004) no. 1, 1–40. Sole winner of the 2005 SIAM Activity Group on Optimization Prize.
- ◇ R.A. Hauser and Y. Lim. “Self–scaled barriers for irreducible symmetric cones”. *SIAM J. Optim.* 12 (2002), no. 3, 715–723.
- ◇ R.A. Hauser and O. Güler. “Self–scaled barrier functions on symmetric cones and their classification”. *Found. Comput. Math.* 2 (2002), no. 2, 121–143.
- ◇ R.A. Hauser and N. Kirchner. “A Historical Note on the Entropy Principle of Muller and Liu”. *Contin. Mech. Thermodyn.* 14 (2002), no. 2, 223–226.
- ◇ R.A. Hauser. “Target directions for primal–dual interior–point methods for self–scaled conic programming”. Winner of the 2000 SIAM Student Paper Prize.
- ◇ R.A. Hauser and H. Matzinger. “Conditional distributions of stable vectors”. Manuscript. Results cited by R. Adler and G. Samorodnitsky in “Level crossings of stable processes”, *Ann. Appl. Prob.*, Vol 7,Nr.2, pp 492 ff.
- ◇ R.A. Hauser and H. Matzinger. “Smallest faithful representation of a C^* –algebra”. *Proc. Amer. Math. Soc.*, Vol.123, (1995), Nr.11:3379–3384.

IN PREPARATION

- ◇ R.A. Hauser and M. Lotz. “On the Volumes of Tubes in Riemannian Homogeneous Spaces and Applications to Condition Numbers”, 2009, draft.
- ◇ R.A. Hauser and B. Svaiter. “Global Convergence of Continuous Regularization Methods”, 2009, draft.
- ◇ R.A. Hauser, V. Krishnamurty and R. Tütüncü. “Relative Robustness in Optimization under Uncertainty”, 2009, draft.
- ◇ D. Zuev and R.A. Hauser. “Robust Portfolio Optimization with Structured Uncertainty Sets”, 2009, draft.
- ◇ R.A. Hauser and D. Goodman. “A Block-Lanczos Method for Computing the Leading Singular Values and Vectors of a Large Column-Distributed Matrix”, 2009, draft.

REPORTS

- ◇ R.A. Hauser and R. Tütüncü. “SDP Approximability of Relative Robust QP”, ICIAM Proceedings 2007.
- ◇ R.A. Hauser. “Primal–dual symmetric scale–invariant square-root fields for isotropic self–scaled barrier functionals”. Numerical Analysis Report DAMTP 1999/NA16, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, England CB3 9EW.
- ◇ R.A. Hauser. “Square–root fields and the “V–space” approach to primal–dual interior–point methods for self–scaled conic programming”. Numerical Analysis Report DAMTP 1999/NA14, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, England CB3 9EW.
- ◇ R.A. Hauser. “Self–scaled barriers for semidefinite programming”. Numerical Analysis Report DAMTP 2000/NA02, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, England CB3 9EW.
- ◇ R.A. Hauser. “Self–scaled barrier functions: Decomposition and classification”. Numerical Analysis Report DAMTP 1999/NA13, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, England CB3 9EW.

THESES

- ◇ R.A. Hauser. “*On Search Directions for Self-Scaled Conic Programming*”. Ph.D. thesis. School of Operations Research and Industrial Engineering, Cornell University, Ithaca, NY, USA. January 2000.
- ◇ R.A. Hauser. “*Smallest Faithful Representations of C^* -Algebras*”. Master thesis in mathematics, ETH Zurich, 1993.

PATENTS

- ◇ R.A. Hauser and D. Goodman. “*Parallel Processing*”. US Patent pending, submitted by ISIS Innovation on behalf of Oxford University, 2008.

GRANTS

- ◇ “Robust Portfolio Optimisation”. EPSRC CASE studentship proposal co-funded by NOMURA as industrial partner. Co-PI with William Shaw (OCIAM). Accepted June 2004. CASE studentship awarded for a period of three years (£48,000.– plus student fees). CASE student: Denis Zuev.
- ◇ “Grid Services for Distributed Data Analysis”. Studentship project proposal submitted to NSERC, March 2003. Co-PI with Myles Allen (Oxford Atmospheric Physics) and Andrew Martin (OUCL). Accepted June 2003. CASE studentship awarded for a period of three years (£48,000.– plus student fees). CASE student: Daniel Goodman.
- ◇ “Feasibility Control in nonlinear systems solving”. Research proposal submitted to Nuffield Foundation under the award scheme of newly appointed lecturers in science, engineering and mathematics. Principal Investigator. Accepted April 2003. £5000.– awarded.
- ◇ “Stiffness in Optimisation”. EPSRC grant proposal submitted in responsive mode, September 2002, three year project with 30 month appointment of a postdoctoral research associate. Principal investigator. Accepted March 2003. £120,000.– awarded. Postdoctoral research associate: Coralia Cartis.
- ◇ “Newton Directions for Interior-Point Methods in Self-Scaled Conic Programming”. Research proposal submitted to the award scheme *Bourses pour Chercheurs Débutants* from the Swiss National Science Foundation and the Swiss Academy of Technical Sciences. Principal Investigator. SFr. 43,000.– awarded August 1998.

INVITED VISITS

- ◇ September/October 2008, Forschungsinstitut für Mathematik, ETH Zürich (4 weeks).
- ◇ Sept 2008, INFN-DISI, University of Genova (1 week).
- ◇ March/April 2007, Department of Mathematics, City University of Hong Kong (3 weeks).
- ◇ March 22 - April 1 2006, Departamento de Ingeniería Matemática, F.C.F.M., Universidad de Chile, Santiago. Millenium Nucleus Project (1 week).
- ◇ January - April 2006, Instituto Nacional de Matemática Pure e Aplicada (IMPA), Rio de Janeiro (4 Months).
- ◇ November 2005, Department of Mathematics, Universität Bielefeld (1 week).
- ◇ September 2005, Department of Mathematics, Universität Bielefeld (2 weeks).
- ◇ March 2005, Department of Mathematics, Georgia Institute of Technology (1 week)
- ◇ November 2004, Dipartimento di Elettronica ed Informazione, Politecnico di Milano (1 week).
- ◇ October 2004, Department of Mathematics, Universität Bielefeld (1 week).
- ◇ April 2004, Department of Mathematics, Georgia Institute of Technology (1 week).
- ◇ March 2004, Tepper School of Business, Carnegie Mellon University (1 week).
- ◇ March 2004, Department of Mathematics and Statistics, Univ. of Maryland Baltimore County (10 days).
- ◇ November 2003, Department of Mathematics, Universität Bielefeld (1 week).
- ◇ June 2003, Business School, Carnegie Mellon University (3 weeks).
- ◇ April 2003, Business School, Carnegie Mellon University (1 week).
- ◇ March 2003, Department of Mathematics and Statistics, Univ. of Maryland Baltimore County (1 week).
- ◇ March 2003, University of Minnesota, IMA (1 week).
- ◇ February 2003, Department of Chemical Physics, Budapest Univ. of Techn. and Econ. (1 week).

- ◇ December 2002, Dipartimento di Elettronica ed Informazione, Politecnico di Milano (1 week).
- ◇ February 2002, Mathematical Research Institute Oberwolfach (1 week).
- ◇ November 2000, City University of Hong Kong (1 month).
- ◇ April 2000, Simon Fraser University Vancouver, CECM (1 month).
- ◇ November 1999, NTNU Trondheim, Gruppe for Numerikk (1 month).
- ◇ November 1998, MSRI, Berkeley (2 weeks).

RECENT PRESENTATIONS

SEMINAR TALKS

- ◇ 12 Feb 2009, OCIAM and OUCL, Oxford, Applied and Computational Mathematics Seminar Series. “A New Perspective on the Complexity of Interior-Point Methods for LP”.
- ◇ 30 Oct 2008, School of Mathematics, University of Edinburgh, Operations Research Seminar Series. “Structured Uncertainty Sets in Robust Optimisation”.
- ◇ 13 Oct 2008, Institut für Operations Research, ETH Zürich, Operations Research Seminar Series. “A New Perspective on the Complexity of Interior-Point Methods for LP”.
- ◇ 2 Oct 2008, Finance and Insurance Seminar, Department of Mathematics, ETH Zürich. “Structured Uncertainty Sets in Robust Portfolio Optimisation”.
- ◇ 27 July 2007, MAN Quant Forum, Oxford. “Robust Portfolio Optimisation”.
- ◇ 21 March 2007, Department of Mathematics, City University of Hong Kong. “Approximation to the Mean Curve of Longest Common Subsequences”.
- ◇ 5 June 2007, Department of Statistics, Oxford University, Combinatorics Seminar Series. “Approximation to the Mean Curve of Longest Common Subsequences”.
- ◇ 25 May 2007, Applied Maths Seminar, Department of Mathematics, Bath University. “Relative Robust Optimisation and the Portfolio Problem”.
- ◇ 18 Jan 2007, Department of Mathematics, University of Birmingham. “Relative Robustness in Quadratic Optimisation”, NA-Opt seminar series.
- ◇ 28 September 2006, Nomura Asset Management, London. “Robust Portfolio Optimisation Models”.
- ◇ 7 April 2006, Instituto de Matematica Pura e Aplicada, Rio de Janeiro. “The Nesterov-Todd Direction and Its Relation to Weighted Analytic Centers”. Optimization Seminar.
- ◇ 31 March 2006, Universidad de Chile, Departamento de Ingenieria Matematica, Santiago de Chile. “Approximation to the Mean Curve in the Longest Common Subsequence Problem”. Probability Seminar.
- ◇ 17 March 2006, Universidade Federal do Rio de Janeiro, Department of Applied Mathematics. “The Nesterov-Todd Direction and Its Relation to Weighted Analytic Centers”. Applied Maths Seminar.
- ◇ September 2005, Universität Bielefeld, Department of Mathematics, Stochastics Seminar. “Approximation to the mean curve in the LCS problem”.
- ◇ 16 June 2005, Tokyo Institute of Technology, Department of Computer Science, “Condition Numbers of Randomly Generated LP Problems”.
- ◇ 26 April 2005, Center for Operations Research and Econometrics (CORE), Université Catholique de Louvain, Louvain-la-Neuve, Belgium. Mathematical Programming Seminar. “Recognizing polyhedral hyperbolic polynomials as determinants”.
- ◇ 17 March 2005, Georgia Institute of Technology, Department of Mathematics, Stochastics Seminar. “Approximation to the mean curve in the LCS problem”.

CONFERENCE TALKS

- ◇ 24 Aug 2009, ISMP 2009, Chicago. “A new perspective on short-step interior-point methods for linear programming”.
- ◇ 2 July 2009, CAPSTONE Meeting, Warwick. “Adversarial Smoothed Analysis”.
- ◇ 13 May 2008, SIOPT 2008, Boston. “Probabilistic Analysis of LP”.
- ◇ 21 Sept 2007, Optbridge 2007, “Robust QP Models and Structured Uncertainty Sets”.

- ◇ ICIAM 2007, Zürich. “SDP Approximability of Relative Robust QP”.
- ◇ 23 August 2006, Optbridge 2006. “A new proof of Yakubovich’s s-Lemma”.
- ◇ 3 August 2006, ISMP 2006, Rio de Janeiro. “Relative Robust Optimization”.
- ◇ 3 August 2006, ISMP 2006, Rio de Janeiro. “A new proof of the s-Lemma”.
- ◇ 16 August 2005, Optbridge 2005. “Relative Robustness in Portfolio Optimization”.
- ◇ 8 July 2005, FoCM 2005, Santander. “Approximation to the Mean Curve in the Longest Common Subsequence Problem”.
- ◇ 10 June 2005, IPCO 2005, Berlin. “Randomized Relaxation Methods for the Maximum Feasible Subsystem Problem”.
- ◇ 18 May 2005, SIOPT 2005, Stockholm. “Recognizing polyhedral hyperbolicity cones”.
- ◇ 17 May 2005, SIOPT 2005, Stockholm. “The Nesterov-Todd Direction and Its Relation to Weighted Analytic Centers”. Prize Award Ceremony talk for the SIAM Activity Group on Optimization Prize 2005.

SUPERVISION

POSTDOCTORAL PROJECTS

- ◇ Martin Lotz. Research Fellow on the DFG Grant “Geometric Methods in the Probabilistic Analysis of Condition Numbers”. 14 Months starting from June 2008.
- ◇ Coralia Cartis. Postdoctoral research associate on EPSRC funded project “Stiffness in Optimisation”. Joined Edinburgh University as a University Lecturer.

DOCTORAL THESES

- ◇ Sergey Shahverdyan, OCIAM, Mathematical Finance Group. October 2009 – present.
- ◇ Denis Zuev, Oxford Centre for Industrial and Applied Mathematics, jointly supervised with William Shaw (OCIAM). “Robust Portfolio Optimisation with Structured Uncertainty”. October 2004 – Jan 2009.
- ◇ Nachiketa Gupta, Oxford University Computing Laboratory, jointly supervised with Neil Johnson (Physics Department). “Constrained Kalman Filtering and Complex Systems”. October 2004 – February 2008. Joined Brevan Howard as a quant.
- ◇ Daniel Goodman, Oxford University Computing Laboratory, jointly supervised with Andrew Martin (OUCL). “A Service Oriented Architecture and Language for Abstracted Distributed Algorithms”. October 2003 – September 2007. Joined OeSC as a postdoc.
- ◇ Jelena Nedić, Oxford University Computing Laboratory. “On the Dynamics of Unconstrained Optimisation Methods”. October 2001 – September 2004. Joined Credit Swiss First Boston as a quant.

MSC THESES

- ◇ Samuel Clarke, MSc in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “Robust Staff Level Optimisation in Call Centres”, September 2007, graduated with distinction.
- ◇ Delany Adom, MSc in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “Robust Deviation Optimisation in Portfolio Theory”, September 2007.
- ◇ Ivan Weber, MSc in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “Robust Pricing in Revenue Management”, September 2005, graduated with distinction.
- ◇ Kanika Dhyani, MSc in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “Computational Study of a New Polynomial Time Algorithm for Linear Programming”, September 2004.
- ◇ Christian Schröder, MSc in Applied and Computational Mathematics, OUCL and OCIAM. “Semidefinite Programming Bounds in Bayesian Statistics”, September 2004.
- ◇ Quentin Decouvlaere, M.Sc. in Mathematical Modelling and Scientific Computing, OUCL and OCIAM, Oxford. “Upper Bounds for the LCS Problem”, September 2003, graduated with distinction.
- ◇ Berthold Heymann, part time M.Sc. in Mathematical Finance, OCIAM, Oxford. “Optimisation Approach for Asset Liability Management/Capital Allocation”. September 2004.

- ◇ Nadine Gottschalk, part time M.Sc. in Mathematical Finance, OCIAM, Oxford. “Robust Portfolio Management”. September 2003, graduated with distinction.
- ◇ Roman Pausch, part time M.Sc. in Mathematical Finance, OCIAM, Oxford. “Shortfall Risk Approach to Managing the Portfolio of a Pension Fund”. November 2002.
- ◇ Ka Victoria Mak, M.Sc. in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “A Heuristic for Portfolio Rebalancing with Transaction Costs”, September 2002.
- ◇ Gauthier Lambert, M.Sc. in Mathematical Modelling and Scientific Computing, OUCL and OCIAM. “Valuing Gas Storage”, industrial project, September 2002.
- ◇ Juergen Stein, part time M.Sc. in Mathematical Finance, OCIAM, Oxford. “Portfolio Theory and Market Fluctuation”, August 2002, graduated with distinction.

UNDERGRADUATE THESES

- ◇ Chris Lormoor, undergraduate in Computing, OUCL. “Large Scale Linear Programming”, June 2006.

TEACHING

LECTURE COURSES

- ◇ Hilary Term 2009: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Integer Programming*, Part B course for 3rd year undergraduates in computer science and/or mathematics.
- ◇ Hilary Term 2009: OXFORD UNIVERSITY, Oxford, England.
Taught Course Centre, Mathematical Institute: Lecturing optimisation module of the course *Numerical Linear Algebra and Optimization*, PhD level course broadcast via the internet to University of Warwick, Imperial College, University of Bristol, and the University of Bath.
- ◇ Trinity Term 2008: OXFORD UNIVERSITY, Oxford, England.
OCIAM: Lecturing *Optimization in Finance*, special topics course for M.Sc. in Mathematical Finance (full time programme).
- ◇ Trinity Term 2008: OXFORD UNIVERSITY, Oxford, England.
OCIAM: Lecturing *Optimization in Finance*, special topics course for Part-time M.Sc. in Mathematical Finance.
- ◇ Hilary Term 2008: OXFORD UNIVERSITY, Oxford, England.
Taught Course Centre, Mathematical Institute: Lecturing optimisation module of the course *Numerical Linear Algebra and Optimization*, PhD level course broadcast via the internet to University of Warwick, Imperial College, University of Bristol, and the University of Bath. New course.
- ◇ Michaelmas Term 2007: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Integer Programming*, Part B course for 3rd year undergraduates in computer science and/or mathematics.
- ◇ Trinity Term 2007: OXFORD UNIVERSITY, Oxford, England.
Oxford Centre for Industrial and Applied Mathematics (OCIAM): Lecturing *Conic Optimization in Finance* & Workshop on Conic Programming, Part time M.Sc. in Mathematical Finance. New course.
- ◇ Trinity Term 2007: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory and OCIAM: Lecturing *Optimization in Finance*, special topics course for M.Sc. in Mathematical Modelling and Scientific Computing.
- ◇ September 2006: OXFORD UNIVERSITY, Oxford, England.
Oxford Centre for Industrial and Applied Mathematics (OCIAM): Lecturing *Optimization in Finance*, Part time M.Sc. in Mathematical Finance.
- ◇ Michaelmas Term 2006: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Integer Programming*, Part B course for 3rd year undergraduates in computer science and/or mathematics.
- ◇ Trinity Term 2006: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory and OCIAM: Lecturing *Optimization in Finance*, special topics course for M.Sc. in Mathematical Modelling and Scientific Computing and M.Sc in Applied and Computational Mathematics. New course.

- ◇ Michaelmas Term 2005: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Integer Programming*, Part B course for 3rd year undergraduates in computer science and/or mathematics.
- ◇ Hilary Term 2005: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Integer Programming*, Part B course for 3rd year undergraduates in computer science and/or mathematics. New course.
- ◇ Hilary Term 2005: OXFORD UNIVERSITY, Oxford, England.
Mathematical Institute: Lecturing *Continuous Optimization*, Section c course for 4th year undergraduates in mathematics.
- ◇ Trinity Term 2004: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Symmetric Cones*, advanced special topics course for D.Phil. students in numerical analysis. New course.
- ◇ Hilary Term 2004: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory and OCIAM: Lecturing *Interior-Point Methods*, special topics course for M.Sc. in Mathematical Modelling and Scientific Computing and M.Sc in Applied and Computational Mathematics. New course.
- ◇ Hilary Term 2004: OXFORD UNIVERSITY, Oxford, England.
Mathematical Institute: Lecturing *Introduction to Continuous Optimisation* (Paper c10) for 4th year undergraduates in mathematics.
- ◇ Trinity Term 2003: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory: Lecturing *Convex Analysis*, special topics course for D.Phil. students. New course.
- ◇ Hilary Term 2003: OXFORD UNIVERSITY, Oxford, England.
Mathematical Institute: Lecturing *Introduction to Continuous Optimisation* (Paper c10) for students in the Honour School of Mathematics.
- ◇ Trinity Term 2002: OXFORD UNIVERSITY, Oxford, England.
Computing Laboratory and OCIAM: Lecturing *Nonlinear Optimization*, special topics course for M.Sc. in Mathematical Modelling and Scientific Computing and M.Sc in Applied and Computational Mathematics. New course.
- ◇ April 2002: SANTA CLARA UNIVERSITY, Santa Clara, Cuba.
Dept. Math. and Comp.: Spring-school graduate course in interior-point methods. New course.
- ◇ Hilary Term 2002: OXFORD UNIVERSITY, Oxford, England.
Mathematical Institute: Lecturing *Introduction to Continuous Optimisation* (Paper c10) for 4th year undergraduates in mathematics. New course.
- ◇ 1989–1991: ABENDTECHNIKUM DER INNERSCHWEIZ, Lucerne, Switzerland.
Faculty of Mechanical Engineering: Instructor of mathematics. Fully responsible of all teaching activities for following courses designed for students in mechanical engineering at level comparable to freshmen and sophomores at American colleges: *Calculus I–IV*, *Linear Algebra I&II*.
- ◇ Autumn 1989: Replacement teacher in high-school level physics, Kantonsschule Alpenquai, Lucerne, Switzerland.

TUTORIALS (SMALL GROUP TEACHING)

- ◇ October 2001–present: PEMBROKE COLLEGE OXFORD, Oxford, England, 144h per annum.
Tutorial Fellow in Applied Mathematics: Teaching *Nonphysical Applied Mathematics*, *Physical Applied Mathematics* and *Mathematical Methods and Models* (Papers 3–5 in Moderations), *Differential and Integral Equations* (Paper a1), *Probability Theory, Statistics and Linear Programming* (Paper a5), *Real Analysis*, b10 *Combinatorial Optimization* and c10 *Continuous Optimization* for students in the Honour School of Mathematical Sciences, the Honour School of Mathematics, the Honour School of Mathematics & Philosophy and the Honour School of Mathematics & Computer Science, and visiting students.
- ◇ Lent Term 2000: UNIVERSITY OF CAMBRIDGE, Cambridge, England.
Dept. Appl. Math. & Theor. Phys.: Supervisions in *Numerical Analysis Part II*.

EXAMINING SERVICE

DPHIL EXAMINER

- ◇ D.Phil. examiner of Xiaodong Luo, Mathematical Institute, Oxford University, November 2009.
- ◇ D.Phil. examiner of Max Jensen, OUCL NA Group, Oxford, February 2005. (Worked on adaptive Galerkin finite element methods for Friedrichs systems.)
- ◇ D.Phil. examiner of Colin Percival, OUCL PR Group, Oxford, January 2005. (Worked on string matching algorithms and applications in distributing software updates.)
- ◇ D.Phil. examiner for Lehel Banjai, OUCL NA Group, Oxford, September 2003. (Worked on numerical Schwartz-Christoffel mapping and the spectral method for solving PDEs.)
- ◇ D.Phil. examiner for Shawn Rusaw, OUCL PR Group, Oxford, July 2002. (Worked on non-smooth analysis in robotics.)

DPHIL TRANSFER EXAMINER

- ◇ Transfer thesis examiner for Jaroslav Fowkes, OUCL. 2008.
- ◇ Transfer thesis examiner for Chin-Yun Chang, OUCL Programming Research Group, Oxford, November 2007. (Worked on genetic algorithms for alternative splicing.)
- ◇ Transfer thesis examiner for Patrick Hewlett, Mathematical Finance Group, OCIAM. 2006.
- ◇ Transfer thesis examiner for Christoph Ortner, OUCL NA Group, Oxford, June 2004. (Worked on the numerical simulation of crack propagation in alloys.)
- ◇ Transfer thesis examiner for Sue Dollar, OUCL NA Group, Oxford, November 2003. (Worked on Schilders factorisation based preconditioners for saddle-point problems.)
- ◇ Transfer thesis examiner for Andris Lasis, OUCL NA Group, Oxford, September 2003. (Worked on adaptive finite-element methods.)

MSC EXAMINER

- ◇ Examiner for MSC in Mathematical Modelling & Scientific Computing and for MSc in Applied & Computational Mathematics, OUCL and OCIAM, 2003–2006, and 2008– present. Includes setting, checking and marking tests, and vivaing 10 students per year on their MSc theses.

UNDERGRADUATE EXAMINER

- ◇ Setter and marker of finals problems for *Continuous Optimisation* (Section c, 2002–2005) and *Integer Programming* (Part B, 2005–2009).
- ◇ Exam checker of finals questions for various Section c courses since 2002.
- ◇ Setter of Oxford maths admissions test 2005.

ADMINISTRATIVE SERVICE

SERVICE TO PROFESSIONAL BODIES

- ◇ Secretary of FoCM, Aug 2002 – 2005.
- ◇ Board member of FoCM, Aug 2002 – 2005.
- ◇ Member of FoCM Council, Aug 2005 – present.

EDITORIAL SERVICE

- ◇ Associate Editor of *SIAM J. Optim.*, January 2005 – December 2010.
- ◇ Regular referee for *SIAM J. Optim.*, *Math. Program.*, *IMA J. Numer. Anal.*, *Found. Comput. Math.*, *Applied Mathematical Finance*, *SIAM J. Numer. Anal.*, CUP and various other.
- ◇ Member of the EPSRC Peer Review Panel.

CONFERENCE ORGANISATION

- ◇ Co-organiser of continuous optimisation workshop, FoCM 2011, Budapest.
- ◇ Co-organiser of the stream “Conic Optimization” at ISMP 2009 in Chicago.
- ◇ Co-organiser of optimisation workshop, FoCM 2008, Hong Kong.
- ◇ Co-organiser of conic optimisation stream, ICCOPT-MOPTA 2007, Hamilton, Ontario.
- ◇ Session organiser at ISMP 2006, Rio de Janeiro.
- ◇ Co-organiser of optimization stream at EURO 2006, Reykjavik.
- ◇ Co-organiser of optimization workshop, FoCM 2005, Santander.
- ◇ Regular organiser of Optbridge optimization workshops.
- ◇ Helper at ICM 94 in Zürich: organised distribution of travel funds to mathematicians from the former Soviet Union; translator for the conference secretary (Russian–German).

OXFORD UNIVERSITY COMPUTING LABORATORY

- ◇ MSc supervisory committee for the Oxford MSc programme in Mathematical Finance, September 2007 – present.
- ◇ Admissions Committee for M.Sc. in Mathematical Modelling and Scientific Computing” and M.Sc. in Applied and Computational Mathematics, OUCL and OCIAM, Oxford, October 2002 – 2005, includes interviewing dozens of candidates each year.
- ◇ MSc supervisory committee for the two joint MSc programmes of the NA Group of OUCL and OCIAM, November 2002 – 2005.
- ◇ Working Group for a new CS Degree.
- ◇ Undergraduate Teaching Panel, October 2002 – 2005.
- ◇ Representing MSc programmes of OUCL and OCIAM at Forum Centrale Paris, November 2004 & 2005.

PEMBROKE COLLEGE OXFORD

- ◇ Senior Mathematics Tutor (2001 – present): director of studies for 35–40 students at any given time, sole responsibility for planning and organising the teaching of mathematics at the College, appointing stipendiary lecturers, planning and conducting the process of admitting undergraduate and graduate students in mathematics to the College (upwards of 200 candidates interviewed since 2001), pastoral support of students, writing reference letters for students and staff.
- ◇ Computing Fellow (June 2002 – present): line manager of IT officers, strategic planning of IT activities at the College. Enforcing IT discipline among students. Development of new College website (<http://www.pmb.ox.ac.uk>): setting up technical specifications, seeking quotes, securing funding, selecting design contractor, overseeing implementation, enforce content contribution.
- ◇ Dean of Degrees (Hilary Term 2008 – present).
- ◇ Deputy Dean (Trinity Term 2002).
- ◇ Member of the New Build Steering Committee (Hilary Term 2008 – present).
- ◇ Member of the Investment Committee (Michaelmas Term 2008 – present).
- ◇ Member of Governing Body (2001 – present).
- ◇ Member of the Academic Committee (2001 – present).
- ◇ Member of the Computing Committee (2002 – present).
- ◇ Member of the Website Steering Group (2004 – present).
- ◇ Member of the Hiring Committee for the appointment of a new Biochemistry Fellow (2003).
- ◇ Member of the Hiring Committee for the appointment of a new Fellow in Law (2004).
- ◇ Member of the Hiring Committee for the appointment of a new Fellow in Pure Mathematics (2005).
- ◇ Participation in fund-raising and alumni-relations events.

MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

- ◇ Foundations of Computational Mathematics.
- ◇ Mathematical Programming Society.

- ◇ Society for Industrial and Applied Mathematics.

REFERENCES

- ◇ Professor Felipe Cucker (macucker@math.cityu.edu.hk), Department of Mathematics, City University of Hong Kong.
- ◇ Professor Michael J. Todd (miketodd@cs.cornell.edu), School of OR&IE, Cornell University.
- ◇ Professor James Renegar (renegar@orie.cornell.edu), School of OR&IE, Cornell University
- ◇ Professor Osman Güler (guler@math.umbc.edu), Department of Mathematics and Statistics, University of Maryland Baltimore County.
- ◇ Professor Adrian Lewis (aslewis@orie.cornell.edu), School of OR&IE, Cornell University.