ANNUAL REPORT 2007

Institut für Statistik
und Decision Support Systems
Universität Wien

Department of Statistics
and Decision Support Systems
University of Vienna

Universitätsstraße 5/9, A-1010 Wien
Brünnerstraße 72, A-1210 Wien

http://www.isds.univie.ac.at/

Vienna, March 2008

Contents

Teaching and research activities

The main teaching duty of the Department of Statistics and Decision Support Systems comprises the education of students at the Faculty of Economics, Business Administration and Statistics as well as at the Faculty of Computer Science in the fields of Mathematics, Statistics, Operations Research, Econometrics, and several areas of Computer Science.

The Department offers undergraduate courses in Mathematics (Linear Algebra, Analysis, Discrete Mathematics) and Statistics for students of Management Science, Economics, Sociology, Applied Computer Science and Statistics. Graduate courses are offered in Mathematical Statistics, Applied Statistics, Operations Research (Optimization and Simulation), Applications of Computer Science, Econometrics and Stochastic Financial Mathematics.

Research is conducted in the areas of Mathematical Statistics; Applied Statistics, Computational Statistics; Probability Theory; Stochastic Methods of Financial Mathematics; Game Theory; Econometrics; Time Series Analysis; Global, Nonlinear, Combinatorial and Stochastic Optimization; Scheduling and Project Management; Modeling and Simulation of Complex Systems; Software Engineering; Information Systems and Statistical Methods in Theoretical Computer Science.

Faculty

Senior faculty

Bomze, Immanuel	Operations Research, Stochastic Modelling
Futschik, Andreas	Asymptotic Statistics, Applied Statistics, Bioinformatics
Gutjahr, Walter J.	Operations Research, Evolutionary Computation, Software Engineering
Klein, Irene	Stochastic Finance
Pflug, Georg Ch.	Mathematical Statistics, Stochastic Optimization and Risk Management
Pötscher, Benedikt M.	Econometrics, Statistics and Time Series Analysis
Reschenhofer, Erhard	Time Series Analysis, Model Selection
Schachinger, Werner	Optimization, Probabilistic Analysis of Algorithms

Junior faculty

Baierl, Andreas	Statistical Methods in Quantitative Genetics
Frommlet, Florian	Applied Mathematics and Statistics
Gach, Florian	Mathematical Statistics
Mirkov, Radoslava	Stochastic Optimization
Nickl, Richard	Probability and Statistics in Infinite Dimensions
Schneider, Ulrike	Statistics and Combinatorial Optimization
Wozabal, Nancy	Statistics and Optimization

Externally funded faculty

Boitard, Simon	Statistical Genetics
Broussev, Nikola	Electricity Markets, Electricity Derivatives, Stochastic Programming, Game Theory
Ha Quang, Minh	Machine Learning, Statistical Genetics
Hochreiter, Ronald	Optimization under Uncertainty, Stochastic Programming, Financial Risk Management, Service Oriented Computing
Katzensteiner, Stefan	Combinatorial and Stochastic Optimization, Multiobjective Optimization
Kiesling, Elmar	Interactive Multicriteria Decision Analysis
Kilianová, Soňa	Operations Research, Financial Mathematics
Ljubic, Ivana	Algorithmic Operations Research, Algorithm Engineering
Putz, Peter	Combinatorial Optimization, Network Design
Rath, Stefan	Operations Research
Reiter, Peter	Operations Research (Algorithms for Deterministic and Stochastic Combinatorial Optimization Problems)
Tomazic, Alessandro	Combinatorial Optimization (Graph Algorithms)
Wiesinger, Clemens	Stochastic Programming, Workflow Engineering/Application Integration, Web Services/Software Components, Financial Data Structures
Wozabal, David	Stochastic Optimization, Non-Convex Optimization, Robust Optimization
Zelle, Hildegard	Stochastic Optimization

Papers published in 2007

Baierl, **Andreas**; Derndorfer, Eva; Vogel-Lahner, Theresia; Mayrhofer, Dieter; Pichler, Christian; Klostermann, Andrea; Reiter, Heiko: Lebensmittelkonsum und Nährstoffaufnahme von Studierenden im ländlichen Raum. *Journal für Ernährungsmedizin* **9**, 13-18 (2007)

Baierl, **Andreas**; **Futschik**, **Andreas**; Bogdan, Małgorzata; Biecek, Przemysław: Locating multiple interacting quantitative trait loci using robust model selection. *Computational Statistics and Data Analysis* **51**(12), 6423-6434 (2007)

Boitard, **Simon**; Loisel, Patrice: Probability distribution of haplotype frequencies under the two-locus Wright-Fisher model by diffusion approximation. *Theoretical Population Biology* **71**, 380-391 (2007)

Bomze, **Immanuel M**.; **Frommlet**, **Florian**; Rubey, Martin: Improving SDP bounds for minimizing quadratic functions over the l_1-ball. *Optimization Letters* **1**(1), 49-59 (2007)

Brailsford, Sally C.; **Gutjahr**, **Walter J**.; Rauner, Marion; Zeppelzauer, Wolfgang: Combined discrete-event simulation and ant colony optimisation approach for selecting optimal screening policies for diabetic retinopathy. *Computational Management Science* **4**(1), 59-83 (2007)

Clarke, Brenton R.; **Futschik**, **Andreas**: On the Convergence of the Newton Method when Estimating Higher Dimensional Parameters. *Journal of Multivariate Analysis* **98**, 916-931 (2007)

Dörner, Karl; Focke, Axel; **Gutjahr**, **Walter J**.: Multicriteria tour planning for mobile healthcare facilities in a developing country. *European Journal of Operational Research* **179**(3), 1078-1096 (2007)

Evans, Neal; **Baierl**, **Andreas**; Semenov, Mikhail A.; Gladders, Peter; Fitt, Bruce D. L.: Range and severity of a plant disease increased by global warming. *Journal of the Royal Society Interface*. Epub ahead of print (2007)

Giné, Evarist; **Nickl**, **Richard**: Uniform Central Limit Theorems for Kernel Density Estimators. *Probability Theory and Related Fields* (forthcoming, available online first since 21st July 2007)

Gutjahr, **Walter J**.; Harman, Mark: Search-based software engineering (Editorial). *Computers and Operations Research* (in press, available online since 7th Feb 2007)

Gutjahr, **Walter J**.; **Katzensteiner**, **Stefan**; **Reiter**, **Peter**: A VNS algorithm for noisy problems and its application to project portfolio analysis. In: Hromioviç, J.; Královiç, R.; Nunkesser, M.; Widmayer, P. (Eds.): *Stochastic Algorithms: Foundations and Applications. 4th International Symposium. SAGA 2007. Zurich, Switzerland, September 13-14, 2007. Proceedings*. Lecture Notes in Computer Science. Volume 4665. Springer, 93-104 (2007)

Gutjahr, **Walter J**.; **Katzensteiner**, **Stefan**; **Reiter**, **Peter**; Stummer, Christian: Multiobjective stochastic project portfolio selection and scheduling using metaheuristics. MIC 2007 (Metaheuristics International Conference). Extended Abstract Volume (2007)

Gutjahr, **Walter J**.; Rauner, Marion: An ACO algorithm for a dynamic regional nurse-scheduling problem in Austria. *Computers and Operations Research* **34**(3), 642-666 (2007)

Gutjahr, **Walter J**.: First steps to the runtime complexity analysis of Ant Colony Optimization. *Computers and Operations Research* (in press, available online since 22nd Jan 2007)

Gutjahr, **Walter J**.: Mathematical runtime analysis of ACO algorithms: survey on an emerging issue. *Swarm Intelligence* **1**, 59-79 (2007)

Hochreiter, **Ronald**; **Pflug**, **Georg Ch**.; Paulsen, Volkert: Design and management of unit-linked life-insurance contracts with guarantees. In: Zenios, S. A.; Ziemba, W. T. (Eds.): *Handbook of Asset and Liability Management*. Volume 2. Handbook in Finance. Elsevier, North-Holland, Amsterdam, 627-662 (2007)

Hochreiter, **Ronald**; **Pflug**, **Georg Ch**.: Financial scenario generation for stochastic multi-stage decision processes as facility location problems. *Annals of Operations Research* **152**(1), 257-272 (2007)

Hochreiter, **Ronald**: An evolutionary computation approach to scenario-based risk-return portfolio optimization for general risk measures. In: Giacobini, M.; Brabazon, A.; Cagoni, S.; Di Caro, G. A.; Drechsler, R.; Farooq, M.; Fink, A.; Lutton, E.; Machado, P.; Minner, S.; O'Neill, M.; Romero, J.; Rothlauf, F.; Squillero, G.; Takagi, H.; Uyar, A. S.; Yang, S. (Eds.): *Applications of Evolutionary Computing. EvoWorkshops 2007: EvoCOMNET, EvoFIN, EvoIASP, EvoINTERACTION, EvoMUSART, EvoSTOC, and EvoTransLog. Valencia, Spain, April 11-13, 2007. Proceedings*. Lecture Notes in Computer Science. Volume 4448. Springer, 199-207 (2007)

Kaniovski, Yuri; **Pflug**, **Georg Ch**.: Risk assessment for credit portfolios: a coupled Markov Chain model. *Journal of Banking and Finance* **31**, 2303-2323 (2007)

Klein, **Irene**; Rogers, L. C. G.: Duality in optimal investment and consumption problems with market frictions. *Mathematical Finance* **17**, 225-247 (2007)

Ljubic, **Ivana**: A Hybrid VNS for Connected Facility Location. In: Bartz-Beielstein, Th.; Blesa, M. J.; Blum, C.; Naujoks, B.; Roli, A.; Rudolph, G.; Sampels, M. (Eds.): *Hybrid Metaheuristics. 4th International Workshop, HM 2007. Dortmund, Germany, October 8-9, 2007. Proceedings*. Lecture Notes in Computer Science. Volume 4471. Springer, 157-169 (2007)

Mirkov, **Radoslava**; **Pflug**, **Georg Ch**.: Tree approximations of stochastic dynamic programs. *SIAM Journal on Optimization* **18**(3), 1082-1105 (2007)

Nickl, **Richard**; **Pötscher**, **Benedikt M**.: Bracketing Metric Entropy Rates and Empirical Central Limit Theorems for Function Classes of Besov- and Sobolev-Type. *Journal of Theoretical Probability* **20**(2), 177-199 (2007)

Nickl, **Richard**: Donsker-Type Theorems for Nonparametric Maximum Likelihood Estimators. *Probability Theory and Related Fields* **138**, 411-449 (2007)

Pagitz, Max; **Frommlet, Florian**; Schwendenwein, Ilse: Evaluation of biological variance of cystatin C in comparison with other endogenous markers of glomerular filtration rate in healthy dogs. *Journal of Veterinary Internal Medicine* **21**(5), 936-942 (2007)

Pflug, **Georg Ch**.; Römisch, Werner: *Modeling, Measuring and Managing Risk*. World Scientific, Singapore (2007)

Pflug, **Georg Ch**.; **Wozabal**, **David**: Ambiguity in Portfolio selection. *Quantitative Finance* **7**(4), 435-442 (2007)

Pflug, **Georg Ch**.: Subdifferential representations of risk measures. *Mathematical programming* **108**(2-3), 339-354 (2007)

Pötscher, **Benedikt M**.: The ET-Interview: Professor Manfred Deistler. *Econometric Theory* **23**, 709-746 (2007)

Schachinger, **Werner**; Addis, Bernardetta; **Bomze**, **Immanuel**; Schoen, Fabio: New results for molecular formation under pairwise potential minimization. *Computational Optimization and Applications* **38**(3), 329-349 (2007)

Steed, Julie M.; **Baierl**, **Andreas**; Fitt, Bruce D. L.: Relating plant and pathogen development to optimise fungicide control of phoma stem canker (*Leptosphaeria maculans*) on winter oilseed rape (*Brassica napus*). *European Journal of Plant Pathology* **118**, 359-373 (2007)

Thurnher, Dietmar; Erovic, Boban M.; **Frommlet, Florian**; Brannath, Werner; Ehrenberger, Klaus; Jansen, Burkhard; Selzer, Edgar; Grasl, Matthäus C.: Challenging a dogma - surgery yields superior long-term results for T1a squamous cell carcinoma of the glottic larynx compared to radiotherapy. *European Journal of Surgical Oncology* (in press, available online since 8th Aug 2007)

Zak, Małgorzata; **Baierl**, **Andreas**; Bogdan, Małgorzata; **Futschik**, **Andreas**: Locating multiple interacting quantitative trait loci using rank-based model selection. *Genetics* **176**, 1845-1854 (2007)

Papers finished in 2007

Bianchi, Leonora; Dorigo, Marco; Gambardella, Luca M.; **Gutjahr**, **Walter J**.: A survey on metaheuristics for stochastic combinatorial optimization.

Bogdan, Małgorzata; **Frommlet**, **Florian**; Biecek, Przemysław; Cheng, Ryan; Ghosh, Jayantha K.; Doerge, Rebecca W.: Extending the Modified Bayesian Information Criterion (mBIC) to dense markers and multiple interval mapping. Accepted for publication in: *Biometrics*

Boitard, **Simon**; Schlötterer, Christian; **Futschik**, **Andreas**: Detecting selective sweeps using Hidden Markov Models on sequence data.

Bomze, **Immanuel**; **Frommlet**, **Florian**; Locatelli, Marco: Gap, cosum, and product properties of the θ' bound on the clique number. *TR 2007-06*

Bomze, **Immanuel**; **Frommlet**, **Florian**; Locatelli, Marco: The first cut is the cheapest: improving SDP bounds for the clique number via copositivity. *TR 2007-05* (revised version of *TR 2006-04*)

Bomze, **Immanuel**; **Schachinger**, **Werner**: Multi-Standard Quadratic Optimization Problems. *TR 2007-12*

Bomze, **Immanuel**: Copositive optimization. Entry for Encyclopedia of Optimization (2nd ed.). *TR 2007-16*

Bomze, **Immanuel**: Lyapunov stability implies neutral stability in doubly symmetric games - a short proof. *TR 2007-07*

Bomze, **Immanuel**: Perron-Frobenius property of copositive matrices, and a block copositivity criterion. *TR 2007-15*

Broussev, **Nikola**; **Pflug**, **Georg Ch**.: Electricity Swing Options: Behavioral Models and Pricing. To appear in: *European Journal of Operational Research*

Chen, Si; **Ljubic**, **Ivana**; Raghavan, S.: The regenerator location problem. *TR 2007-20*. Submitted to: *Networks*

Chimani, Markus; Kandyba, Maria; **Ljubic**, **Ivana**; Mutzel, Petra: Obtaining Optimal k-Cardinality Trees Fast. To appear in: *SIAM 2008 Proceedings of the Ninth Workshop on Algorithm Engineering and Experiments (ALENEX)*

Chimani, Markus; Kandyba, Maria; **Ljubic**, **Ivana**; Mutzel, Petra: Strong Formulations for 2-Node Connected Steiner Network Problems. *TR 2007-19*

Dörner, Karl F.; **Gutjahr**, **Walter J**.; Hartl, Richard F.; Lulli, Guglielmo: Stochastic local search procedures for the probabilistic two-days vehicle-routing problem.

Dörner, Karl; **Gutjahr**, **Walter J**.; Nolz, Pamela: Multi-criteria location planning for public facilities in tsunami-prone coastal areas.

Frommlet, **Florian**: A Novel Approach to Ordinal Regression without Latent Variables. Submitted to: *Information Sciences*

Futschik, **Andreas**; **Gach**, **Florian**: On the Inadmissibility of Watterson’s Estimate. Accepted for publication in: *Theoretical Population Biology*

Giné, Evarist; **Nickl**, **Richard**: A Simple Adaptive Estimator of the Integrated Square of a Density. To appear in: *Bernoulli*

Giné, Evarist; **Nickl**, **Richard**: An Exponential Inequality for the Distribution Function of the Kernel Density Estimator, with Applications to Adaptive Estimation. To appear in: *Probability Theory and Related Fields*

Giné, Evarist; **Nickl**, **Richard**: Uniform Limit Theorems for Wavelet Density Estimators (preprint)

Gröchenig, Karlheinz; **Pötscher**, **Benedikt M**.; Rauhut, Holger: Learning Trigonometric Polynomials from Random Samples and Exponential Inequalities for Eigenvalues of Random Matrices (manuscript 2007)

Gutjahr, **Walter J**.; **Katzensteiner**, **Stefan**; **Reiter**, **Peter**; Stummer, Christian; Denk, Michaela: Competence-driven project portfolio selection, scheduling and staff assignment.

Gutjahr, **Walter J**.; Sebastiani, Giovanni: Runtime analysis of ant colony optimization with best-so-far reinforcement. Accepted for publication in: *Methodology and Computing in Applied Probability*

Ha Quang, **Minh**: Error Estimations in Learning Theory via Effective Dimensionality.

Hochreiter, **Ronald**; **Mirkov**, **Radoslava**; **Pflug**, **Georg Ch**.: Tree Approximations of Dynamic Stochastic Programs: Numerical Issues.

Hochreiter, **Ronald**: Evolutionary stochastic portfolio optimization. To appear in: Brabazon, A.; O'Neill, M. (Eds.): *Natural Computation in Computational Economics and Finance. Studies in Computational Intelligence*. Volume 100. Springer, Berlin, Heidelberg (2008)

Isogai, Eiichi A.; **Futschik**, **Andreas**: On the convergence rate of sequential fixed-width confidence intervals for normal parameters. To appear in: *Statistics and Probability Letters*

Kilianová, **Soňa**; **Pflug**, **Georg**: Optimal pension fund management under multi-period risk minimization. To appear in: *Annals of Operations Research*

Klein, **Irene**: No asymptotic free lunch reviewed in the light of Orlicz spaces. To appear in: *Séminaire de Probabilités* **41**

Leeb, Hannes; **Pötscher**, **Benedikt M**.: Recent Developments in Model Selection and Related Areas. To appear in: *Econometric Theory* **24** (2008)

Mirkov, **Radoslava**; Pilipovic, Stevan; Selesi, Dora: Generalized Stochastic Processes in Algebras of Generalized Functions with Examples.

Ploberger, Werner; **Reschenhofer**, **Erhard**: Testing for cycles in time series.

Pötscher, **Benedikt M**.; Leeb, Hannes: On the Distribution of Penalized Maximum Likelihood Estimators: The LASSO, SCAD, and Thresholding (manuscript 2007)

Pötscher, **Benedikt M**.; **Schneider**, **Ulrike**: On the Distribution of Adaptive LASSO Estimator (manuscript 2007)

Pötscher, **Benedikt M**.: Confidence Sets Based on Sparse Estimators Are Necessarily Large (manuscript 2007)

Reschenhofer, **Erhard**: Combining generalized Kolmogorov-Smirnov tests.

Reschenhofer, **Erhard**: Frequency domain modeling with piecewiese constant spectra.

Reschenhofer, **Erhard**: Super-whiteness of returns spectra.

Schneider, **Ulrike**: A Tabu Search Application for a Scheduling Problem.

Stummer, Christian; **Kiesling**, **Elmar**; **Gutjahr**, **Walter J**.: A multicriteria decision support system for competence-driven project portfolio selection.

Tseng, Paul; **Bomze**, **Immanuel**; **Schachinger**, **Werner**: A First-Order Interior-Point Method for Linearly Constrained Smooth Optimization. *TR 2007-17*

Wiesemann, Wolfram; **Hochreiter**, **Ronald**; Kuhn, Daniel: A Stochastic Programming Approach for QoS-Aware Service Composition. Accepted for publication in: *Proceedings of the CCGRID'08*. IEEE Computer Society (2008)

Research stays at other institutions

Person	Institution	Research topic	Duration in weeks
Boitard, Simon	University of Wrocław, Poland	QTL mapping, Population genetics	1
Bomze, Immanuel	FB Informatik, Universität Dortmund, Germany	Solution of the crossing number problem	1
Bomze, Immanuel	DEIS, Università della Calabria, Rende (Cosenza), Italy	Quadratic and conic optimization with application	2
Bomze, Immanuel	Department of Mathematics, University of Coimbra, Portugal	Copositive programming approach to the complementary eigenvalue problem	1
Frommlet, Florian	Purdue University, USA	Visiting Assistant Professor	23

Person	Institution	Research topic	Duration in weeks
Futschik, Andreas	Tamkang University, Taiwan	Multiple Comparison Procedures	1
Futschik, Andreas	Niigata University, Japan	Sequential Statistics	3
Futschik, Andreas	University of Tokyo, Japan	Statistical challenges in genetics	1
Ha Quang, Minh	University of California, Los Angeles, USA	Mathematics of Knowledge and Search Engines	15
Hochreiter, Ronald	Department of Computing, Imperial College, London, Great Britain	Stochastic Programming, Computational Finance, Robust Optimization, Service Composition	3
Ljubic, Ivana	Department of Computer Science, University of Dortmund, Germany	Exact Approaches to Network Design Problems	1
Mirkov, Radoslava	University of Bergamo, Italy	Stochastic Programming School 2007	1
Nickl, Richard	Department of Mathematics, University of Connecticut, USA	Postdoctoral Fellow	Since Aug 2006
Pötscher, Benedikt M.	Department of Economics, Universidad Carlos III, Madrid, Spain	Model Selection	3

Presentations at conferences

Person	Conference	Title of presentation
Boitard, Simon	ESF workshop “Population genetics modelling and habitat fragmentation: separating recent and ancient events for efficient conservation”, Instituto Gulbenkian de Ciências, Oeiras, Portugal	Detection of selective sweeps using Hidden Markov Models
Boitard, Simon	Workshop on Statistical Approaches to Inference of Selection, Konrad Lorenz Institut Altenberg, Austria	Detection of selective sweeps using Hidden Markov Models
Boitard, Simon; Futschik, Andreas	Workshop on Statistical Approaches to Inference of Selection, Konrad Lorenz Institut Altenberg, Austria	New Methods for Detecting Selective Sweeps based on Hidden Markov Models and Support Vector Machines
Bomze, Immanuel	11^{th} Combinatorial Optimization Workshop, Aussois, France (invited)	The first cut is the cheapest – improving SDP bounds for the clique number

Person	Conference	Title of presentation
Bomze, Immanuel	Learning and Intelligent OptimizatioN (LION 2007), Andalo (Trento), Italy (contributed)	Multi-Standard Quadratic Optimization Problems and their role in (un-)supervised Machine Learning
Bomze, Immanuel	Optimization 2007, Porto, Portugal (in invited special session)	Multi-Standard Quadratic Optimization Problems: Principles, Motivation and Applications
Bomze, Immanuel	Workshop “New problems and innovative methods in nonlinear optimization”, Erice, Italy (invited plenary)	Recent developments in copositive programming
Bomze, Immanuel	9th International Symposium on Operations Research (SOR 07), Nova Gorica, Slovenia (invited plenary)	Recent developments in copositive programming
Bomze, Immanuel	Workshop “Games in communication II”, Bielefeld, Germany (invited)	Fixation conditions in finite population games
Broussev, Nikola	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Electricity Swing Options: Behavioral Models and Pricing
Frommlet, Florian	Optimization 2007, Porto, Portugal	The first cut is the cheapest
Futschik, Andreas	5th International Conference on Multiple Comparison Procedures (MCP 2007), Vienna, Austria	On estimates of R-values in selection problems
Gutjahr, Walter J.	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Analysis of stochastic metaheuristics
Gutjahr, Walter J.	4th Symposium on Stochastic Algorithms, Foundations, and Applications (SAGA 2007), Zurich, Switzerland	A VNS algorithm for noisy problems and its application to project portfolio analysis
Anselm, Eder; Gutjahr, Walter J.	Kongress der Österreichischen Gesellschaft für Soziologie 2007, Graz, Austria	Emergence of structures in two-person interactions: a simulation model of two learning agents, and some applications
Ha Quang, Minh	Culminating Conference, UCLA, Lake Arrowhead, USA	Kernels and Effective Dimensionality
Hochreiter, Ronald	Stochastic Programming School 2007, Bergamo, Italy	Approximation of stochastic processes in stochastic programming applications
Hochreiter, Ronald	EvoStar 2007, Valencia, Spain	Evolutionary Stochastic Portfolio Optimization
Hochreiter, Ronald	4th International Conference on Computational Management Science, Geneva, Switzerland	Contemporary modeling of multi-stage stochastic programming problems

Person	Conference	Title of presentation
Hochreiter, Ronald	Power Systems Modelling 2007, Athens, Greece	Multi-stage stochastic decision modeling in electricity portfolio management
Hochreiter, Ronald	22nd European Conference on Operational Research (EURO XXII), Prague, Czech Republic	Multi-stage Stochastic Optimization and Pension Fund Management
Hochreiter, Ronald	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Simplified stage-based modeling of multi-stage stochastic programming problems
Hochreiter, Ronald	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Stochastic Optimization and Pension Fund Modeling
Stummer, Christian; Kiesling, Elmar	INFORMS 2007 International Meeting, Rio Grande, Puerto Rico	Interactive Decision Support for Competence-Driven Project Selection in a Research Center
Kilianová, Soňa	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Optimal pension fund management under multi-period risk minimization
Klein, Irene	Workshop on Advanced Mathematical Methods for Finance, Vienna, Austria	Market free lunch and large financial markets
Ljubic, Ivana	Learning and Intelligent OptimizatioN (LION 2007), Andalo (Trento), Italy	Connected Facility Location: VNS, Tabu-Search and Branch-and-Cut
Ljubic, Ivana	Optimization 2007, Porto, Portugal	Facility Location and Steiner Trees
Ljubic, Ivana	Hybrid Metaheuristics 2007, Dortmund, Germany	A Hybrid VNS for Connected Facility Location
Chen, Si; Ljubic, Ivana; Raghavan, S.	INFORMS Annual Meeting, Seattle, USA	The Regenerator Location Problem
Mirkov, Radoslava	22nd European Conference on Operational Research (EURO XXII), Prague, Czech Republic	Tree Approximations of Dynamic Stochastic Programs: Numerical Aspects
Mirkov, Radoslava	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Tree Approximations of Dynamic Stochastic Programs
Mirkov, Radoslava	Stochastic Programming and Optimization: Modeling and Applications, Brno, Czech Republic	Tree Approximations of Dynamic Stochastic Programs: Numerical Results
Nickl, Richard	Joint Statistical Meetings, Salt Lake City, USA	Uniform Central Limit Theorems for Density Estimators
Nickl, Richard	7th Meeting on Mathematical Statistics, Marseille, France	Adaptive Estimation of a Distribution Function and its Density in Sup-Norm Loss

Person	Conference	Title of presentation
Pflug, Georg	International Conference on Mathematical Methods in Economics and Industry (MMEI), Herľany, Slovakia (invited)	Optimization in energy markets
Pflug, Georg	22nd European Conference on Operational Research (EURO XXII), Prague, Czech Republic (stream organizer)	Risk contributions
Pflug, Georg	11th Conference on Stochastic Programming (SPXI), Vienna, Austria (organizer)	Nested distributions
Pflug, Georg	STOchastic Programming and OPTImization: Modeling and Applications (STOPTIMA 2007), Brno, Czech Republic (invited)	Multiperiod risk measures
Pflug, Georg	Workshop/Conference on Advanced Mathematical Methods for Finance (AMaMeF), TU Vienna, Austria	Electricity swing options
Pflug, Georg	Models of Credit and Operational Risks in the Financial Sector (MCOR), Bolzano, Italy (organizer)	Multiperiod risk measures
Pflug, Georg	IFIP/IIASA/GAMM Workshop on Coping with Uncertainty (CwU), Laxenburg, Austria	Catastrophe modeling
Pötscher, Benedikt M.	Statistical models for financial data II, TU Graz, Austria (invited)	Sparse estimators and the oracle property, or the return of Hodges' estimator
Pötscher, Benedikt M.	Colloquium in Honor of Istvan Berkes, TU Graz, Austria (invited)	On a Theorem of Berkes and Horvath
Pötscher, Benedikt M.	Reassessing the Paradigms of Statistical Model-Building, Mathematisches Forschungsinstitut Oberwolfach, Germany (invited)	On the Distribution of Penalized Maximum Likelihood Estimators
Reiter, Peter	Metaheuristic International Conference, Montreal, Canada	Multi-Objective Stochastic Project Portfolio and Scheduling Using Metaheuristics
Schachinger, Werner	Optimization 2007, Porto, Portugal	Multi-Standard Quadratic Optimization Problems: Local Search, Global Bounds and Dual Attainability
Wiesinger, Clemens	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Financial Management System: A Workflow-based Approach for Interchangeable Scientific Software Components in Computational Finance

Person	Conference	Title of presentation
Wozabal, David	22nd European Conference on Operational Research (EURO XXII), Prague, Czech Republic	Optimization under Ambiguity
Wozabal, David	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	Non-Parametric Model Uncertainty in Stochastic Programming
Wozabal, Nancy	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	On the asymptotic distribution of coherent law-invariant acceptability functionals
Wozabal, Nancy	22nd European Conference on Operational Research (EURO XXII), Prague, Czech Republic	Asymptotic properties of coherent law-invariant acceptability functionals
Zelle, Hildegard	11th Conference on Stochastic Programming (SPXI), Vienna, Austria	A Modern Asset Liability Management System for Austrian Pension Funds

Talks given at other institutions

Person	Institution	Title
Boitard, Simon	University of Wrocław, Poland	Detection of selective sweeps using Hidden Markov Models
Boitard, Simon	University of Wrocław, Poland	Linkage disequilibrium mapping of quantitative trait loci
Boitard, Simon	University of Montpellier, France	Cartographie de gènes à caractères quantitatifs par déséquilibre de liaison
Boitard, Simon	Institut Camille Jourdan, Lyon, France	Cartographie de gènes à caractères quantitatifs par déséquilibre de liaison
Boitard, Simon	Laboratoire d'Ecologie Alpine, Grenoble, France	Cartographie de gènes à caractères quantitatifs par déséquilibre de liaison
Bomze, Immanuel	Institut für Informatik, Universität Köln, Germany	Copositive and (Standard) Quadratic Programming: a central problem class in optimization
Bomze, Immanuel	Mathematisches Kolloquium, Universität Düsseldorf, Germany	Copositive and (Standard) Quadratic Programming: a central problem class in optimization
Bomze, Immanuel	Wirtschaftswissenschaftliches Kolloquium, Universität Heidelberg, Germany	Neutrality, drift and differentiation: degeneracy matters in game dynamics
Bomze, Immanuel	Seminario Permanente di Ottimizatione, Università degli Studi Firenze, Italy	The first cut is the cheapest – improving SDP bounds for the clique number

Person	Institution	Title
Bomze, Immanuel	Dipartimento di Informatica, Università degli Studi di Bari, Italy	Optimization dynamics for quadratic problems and their role in machine intelligence
Futschik, Andreas	Tamkang University, Taiwan	Topics in Nonparametric Density Estimation
Futschik, Andreas	Tamkang University, Taiwan	On the Optimum Number of Hypotheses to Test when the Number of Observations is Limited
Futschik, Andreas	Tamkang University, Taiwan	Improvement of Watterson's and related estimates for the mutation rate based on shrinkage
Futschik, Andreas	Tokyo Institute of Technology, Japan	On the inadmissibility of Watterson's estimate
Gutjahr, Walter J.	Lehrstuhl für technische Dienstleistungen und Operations Management, Technische Universität München, Germany	Competence-driven project portfolio analysis
Gutjahr, Walter J.	Fakultät für Wirtschaftswissenschaften, Technische Universität München, Germany	Multicriteria combinatorial optimization under uncertainty: methods and management applications
Ha Quang, Minh	Stanford University, USA	Kernels and Effective Dimensionality
Hochreiter, Ronald	Department of Computing, Imperial College London, Great Britain	Dynamic Stochastic Optimization: Issues in Multi-Stage Scenario Modeling
Kilianová, Soňa	Comenius University, Bratislava, Slovakia	Optimal Pension Planning
Radoslava, Mirkov	University of Bergamo, Italy	Tree Approximations of Dynamic Stochastic Programs
Nickl, Richard	Statistics Colloquium, Department of Statistics, University of Connecticut, USA	Uniform Central Limit Theorems for Density Estimators
Nickl, Richard	Stochastics Seminar, Department of Mathematics, Massachusetts Institute of Technology (MIT), Cambridge Massachusetts, USA	Uniform Central Limit Theorems for Density Estimators
Nickl, Richard	Stochastics Seminar, Department of Mathematics, University of Utah, USA	Uniform Limit Theorems for Wavelet Density Estimators
Pflug, Georg	Winter School Bergamo, Italy	Duality in Stochastic Programming
Pflug, Georg	Humboldt-Universität zu Berlin, Germany	Multiperiod risk functionals
Pflug, Georg	TU Espoo, Finland	Version-independent multiperiod risk measures

Person	Institution	Title
Pötscher, Benedikt	Department of Economics, University of California, San Diego, USA	Model Selection and Inference
Pötscher, Benedikt	Department of Economics, Stanford University, USA	Model Selection and Inference
Pötscher, Benedikt	Department of Economics, University of California, Berkeley, USA	Model Selection and Inference
Pötscher, Benedikt	Department of Economics, University of California, Los Angeles, USA	Model Selection and Inference
Pötscher, Benedikt	Fachbereich für Statistik, Universität Dortmund, Germany	Sparse estimators and the oracle property, or the return of Hodges' estimator
Wiesinger, Clemens	Siemens-CRM Meeting, Vienna, Austria	Scenario Trees: Data-Structure and Visualization

Referee work for journals and organisations

Baierl, Andreas	• Heredity (1)[1]
Bomze, Immanuel M.	• Computational Optimization and Applications (1) • Central European Journal of Operations Research (1) • SIAM Journal on Optimization (2) • Mathematical Programming (1) • Computational Statistics and Data Analysis (1) • Games and Economic Behaviour (1) • Journal of Global Optimization (1) • Linear Algebra and Applications (1) • Program referee for LION 2007 (2) • Program referee for LIONbis 2007 (3)
Frommlet, Florian	• Genetics (1) • Journal of Computational and Graphical Statistics (1) • Journal of Global Optimization (1) • Psychology Science (1)
Futschik, Andreas	• Biometrical Journal (1) • Statistische Hefte (1) • Statistical Applications in Genetics and Molecular Biology (1) • Journal of Statistical Planning and Inference (2) • Austrian Journal of Statistics (1) • Journal of Multivariate Analysis (1)

[1] indicates the number of papers reviewed in 2007

Gutjahr, Walter J.	• BioMed Central Evolutionary Biology (1) • Computers and Operations Research (1) • European Journal of Operational Research (2) • Genetic Programming and Evolvable Machines (1) • IEEE Transactions on Evolutionary Computation (2) • IEEE Transactions on Software Engineering (1) • IEEE Transactions on Systems, Man, and Cybernetics (2) • INFORMS Journal on Computing (1) • International Journal of Production Economics (1) • Journal of Artificial Intelligence Research (1) • Journal of Discrete Algorithms (1) • Journal of Software Maintenance and Evolution (1) • Production and Operations Management (1) • Swarm Intelligence (1) • University of Mauritius Research Journal (1) • PhD evaluation report Ramon Sagarna (University of the Basque Country, Spain)
Hochreiter, Ronald	• Mathematical Programming (1) • Computers and Operations Research (1) • Operational Research: An International Journal (1) • Volume on Computational methods in financial engineering, Springer (1) • EvoFin 2008 Workshop (2)
Klein, Irene	• Finance and Stochastics (1) • Decisions in Economics and Finance (1)
Ljubic, Ivana	• Networks (1)
Nickl, Richard	• Annals of Probability (1) • Annals of Statistics (1) • Bernoulli (2) • Journal of Econometrics (1) • Stochastic Processes and Applications (1)
Pflug, Georg	• Two PhD defenses in Berlin (2nd referee)
Pötscher, Benedikt	• Econometric Theory • Econometrica
Schachinger, Werner	• Random Structures and Algorithms (1) • Journal of Global Optimization (1)
Wozabal, David	• Central European Journal of Operations Research (1)

Editorial work

Bomze, Immanuel M.
- Central European Journal of Operations Research
- Journal of Global Optimization
- Optimization Letters
- TOP. An Official Journal of the Spanish Society of Statistics and Operations Research

Futschik, Andreas
- International Journal of Information and Management Sciences

Gutjahr, Walter J.
- Dörner, Karl; Gendreau, Michel; Gutjahr, Walter J.; Greistorfer, Peter; Hartl, Richard F.; Reimann, Marc: *Metaheuristics: Progress in Complex Systems Optimization.* Springer, New York (2007)
- Swarm Intelligence (member of the editorial board)

Hochreiter, Ronald
- Computational Management Science (guest editor)
- Optimization (guest editor)

Mirkov, Radoslava
- Annals of Operations Research: Stochastic dynamic modeling of investments and risks in financial markets (special issue)
- Quantitative Finance (special issue)
- Journal of Banking and Finance (special issue)
- Central European Journal of Operations Research (special issue)

(all together with Pflug, Georg)

Pflug, Georg
- Statistics and Decisions (editor in chief)
- Mathematical Methods of Operations Research (associate editor)
- Computational Optimization and Applications (associate editor)
- Computational Management Science (associate editor)
- Central European Journal of Operations Research (associate editor)
- Austrian Journal of Statistics (associate editor)
- Annals of Operations Research: Stochastic dynamic modeling of investments and risks in financial markets (special issue)
- Journal of Banking and Finance (special issue)
- Quantitative Finance (special issue)

Pötscher, Benedikt
- Econometric Theory (co-editor)
- Journal of Econometrics (associate editor)
- Econometric Theory (special issue) (guest editor)

Membership as scientific professional in scientific organisations

Baierl, Andreas	• Österreichische Statistische Gesellschaft (OSG)
Bomze, Immanuel M.	• OSG • Österreichische Mathematische Gesellschaft (ÖMG) • Österreichische Gesellschaft für Operations Research (ÖGOR)
Futschik, Andreas	• OSG • Institute of Mathematical Statistics (IMS)
Gutjahr, Walter J.	• ÖGOR (executive board member)
Hochreiter, Ronald	• Association for Computing Machinery (ACM) • IEEE Computer Society (IEEE/CS) • Institute for Operations Research and the Management Sciences (INFORMS) • International Association for Statistical Computing (IASC) • Mathematical Programming Society (MPS) • Society for Industrial and Applied Mathematics (SIAM) • ÖGOR
Ljubic, Ivana	• ÖGOR
Mirkov, Radoslava	• SIAM (Optimization)
Nickl, Richard	• IMS
Pötscher, Benedikt	• American Mathematical Society (AMS) • American Statistical Association (ASA) • IMS • Econometric Society • Verein für Socialpolitik (Ausschuss für Ökonometrie)
Schachinger, Werner	• ÖMG
Schneider, Ulrike	• ASA • Econometric Society

Public relations activities

Gutjahr, Walter J.	Interview for “trend” In: trend **10**: Rascher, billiger, sicherer: Forschung verbessert Logistik (2007)
Eder, Anselm; Gutjahr, Walter J.; Uchida, Gabriele	Virtual course within the ECFUN program (European Children’s Future University Network, project funded by the European Commission, 6^{th} Framework Program)
Ljubic, Ivana	Interview for “dieuniversitaet-online.at”, Feb 2007
Schneider, Ulrike	Presentation at the “Wiener Töchtertag im math.space”

Supervision of diploma theses and PhD theses

Supervisor	Author	DA[2]/ DISS 1[3]/ DISS 2[4]	Title
Futschik, Andreas	Baierl, Andreas	DISS 1	Model Selection Techniques for Locating Multiple Quantitative Traits in Experimental Crosses
Futschik, Andreas	Jordan, Barbara	DISS 2	Construction of a New Risk Score for Intensive Care Patients: SAPS3
Futschik, Andreas	Dunkler, Daniela	DISS 2	Class Prediction in High-Dimensional and Small-Sample Settings with Applications to Microarray Gene Expression Data
Futschik, Andreas	Gach, Florian	DA	The coalescent: A stochastic approach to evolution
Futschik, Andreas	Gutjahr, Georg	DA	Statistical Models for Chronic Kidney Disease
Gutjahr, Walter J.	Polacek, Michael	DISS 2	Variable Neighborhood Search for Routing Problems
Gutjahr, Walter J.	Mader, Daniel	DA	Empirische Untersuchung zu projektorientiertem Outsourcing und Offshoring
Gutjahr, Walter J.	Holzmann, Stefan	DA	Parametertuning von Evolutionären Algorithmen in der Mehrzieloptimierung
Gutjahr, Walter J.	Baumgartner, Katrin	DA	The Vehicle Routing Problem with Time Windows and Stochastic Service Times: Two Metaheuristic Approaches
Gutjahr, Walter J.	Malinowski, Mariusz	DA	Mixed Integer Linear Problem Solution of the Resource Constrained Project Scheduling Problem under Differing Competencies
Gutjahr, Walter J.	Shad, Yousaf	DISS 2	Water Resources Management by Stochastic Optimization: A Case Study of Indus Basin Irrigation System

[2] Diploma thesis finished in 2007
[3] PhD thesis finished in 2007 – First referee
[4] PhD thesis finished in 2007 – Second referee

Supervisor	Author	DA[2]/ DISS 1[3]/ DISS 2[4]	Title
Gutjahr, Walter J.	Schmid, Verena	DISS 2	Trucks in Movement: Hybridization of Exact Approaches and Variable Neighborhood Search for the Delivery of Ready-Mixed Concrete
Gutjahr, Walter J.	Rath, Stefan	DA	Resource Allocation for Epidemic Control over Short Time Horizons by Multiobjective Metaheuristics

Other professional activities

Bomze, Immanuel M.	• Vice Dean of Faculty of Business, Economics and Statistics (until Oct 2007) • Member of Program Committee LION 2007, Andalo • Member of Program Committee LIONbis 2007, Trento • Organisation of special invited session at Optimization 2007, Porto
Futschik, Andreas	• Member of Executive Board OSG • ERASMUS Program Coordinator for Studies in Statistics
Gutjahr, Walter J.	• Visiting member of the PhD committee of Ramon Sagarna (University of the Basque Country, Spain) • Visiting member of the PhD committee of Francisco Chicano (University of Malaga, Spain) • Program Committee GECCO 2007 (Genetic and Evolutionary Computation Conference) • Program Committee EvoCop 2008 (European Conference on Evolutionary Computation in Combinatorial Optimisation) • Program Committee MIC 2007 • Program Committee MOTES 2007 • Program Committee RT 2007 (International Workshop on Random Testing) • Program Committee Software Engineering 2007 (WS Software Testing) • Technical Committee WCCI 2008 (World Congress on Computational Intelligence)
Ljubic, Ivana	• Member of Executive Board ÖGOR
Mirkov, Radoslava	• Local organizing committee, SPXI 2007
Pflug, Georg	• Stream financial modeling at the EURO XXII conference, Prague • 11th Conference on Stochastic Programming (SPXI), Vienna • MCOR (models for credit and operational risk workshop), Bolzano
Pötscher, Benedikt	• Co-organizer of the workshop “Current Trends and Challenges in Model Selection and Related Areas”
Schachinger, Werner	• Head of Department

Talks given at the department

8 January
Lutz Dümbgen (Univ. Bern): Konfidenzbereiche für Modellselektion

22 January
Minh Ha Quang (Univ. Wien): Reproducing kernel Hilbert spaces in learning theory

29 January
Ya'acov Ritov (HU Jerusalem): Nonparametric sparse regression, prediction and model selection

19 March
Ivana Ljubic (Univ. Wien): Connected facility location in the design of telecommunication networks

26 March
Angelika Wiegele (Univ. Klagenfurt): Combining semidefinite and polyhedral relaxations for solving the Max-Cut problem

18 April
Philippe Naveau (LSCE, Paris): Modeling spatial dependence for extremes in climate studies

23 April
Florian Gach (Univ. Wien): On the inadmissibility of Watterson's estimate

14 May
Lajos Horváth (Univ. Utah): What is rejected by a CUSUM based procedure?

04 June
Simon Boitard (Univ. Wien): Linkage disequilibrium mapping of quantitative trait loci

11 June
Evarist Giné (Univ. Connecticut): A simple adaptive estimator of the integrated square of a density

18 June
Rainer Kolisch (TU München): Human resource development and allocation in project environments with explicit consideration of qualification and learning

25 June
Friedrich Liese (Univ. Rostock): Lokal asymptotisch optimale Auswahlverfahren

22 October
Daniela di Serafino (Univ. Napoli): Effective solution of the KKT system for effective large-scale optimization

05 November
Janez Povh (Univ. Maribor): On approximations of hard combinatorial problems by semidefinite and copositive programming

19 November
Rudolf Beran (Univ. California, Davis): Regularized Regression: A Minimalist's Approach to Fitting and Extrapolating a Discrete Incomplete Multi-way Layout

26. November
José Antonio Lozano (Euskal Univ. San Sebastian): Optimization by Means of Probabilistic Graphical Models

03 December
Damir Filipović (Univ. Wien): Non-monotone risk measures and monotone hulls