OLEKSANDR ROMANKO

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AREAS OF INTEREST

Optimization, operations research, data mining, mathematical modeling, optimization in finance, portfolio and risk management, algorithms, software development, high-performance computing

HIGHLIGHTS OF QUALIFICATIONS

- Wide expertise in optimization, operations research, data mining and risk management
- Advanced training in economics, optimization methods in finance, economics and risk management, financial modeling and portfolio management
- Proficiency in mathematical modeling, algorithms and software
- Extensive programming skills and experience in mathematical software development
- Knowledge of system architectures and operating systems, system administration experience
- Fluency in a number of languages including English and Russian, proficiency in technical writing
- Ability to meet deadlines, to work independently and in a team, good communication skills

EDUCATION

Ph.D. in Computer Science 2004 – 2010
Advanced Optimization Laboratory, Department of Computing and Software,
McMaster University, Hamilton, ON, Canada
Ph.D. Project: *Multiobjective and Parametric Optimization with Applications in Finance*
Supervisors: *Tamás Terlaky* (Lehigh University) and *Antoine Deza* (McMaster University)

Master of Science in Computer Science 2002 – 2004
Advanced Optimization Laboratory, Department of Computing and Software,
McMaster University, Hamilton, ON, Canada
M.Sc. Thesis**:** *Quadratic and Parametric Quadratic Optimization*
Supervisor: *Tamás Terlaky*, Canada Research Chair in Optimization

Master of Arts in Economics 2000 – 2002
Center for Economic Research and Graduate Education (CERGE) / University of
the State of New York graduate program, Charles University, Prague, Czech Republic

Bachelor of Science in Systems Engineering, with distinction 1993 – 1998
Sumy State University, Sumy, Ukraine
B.Sc. Thesis: *Microprocessor Control System of the Electronic Microscope PEM-125K*

WORK EXPERIENCE

Research Analyst 2012 – present
Risk Analytics, Business Analytics, IBM, Toronto, ON, Canada
- Conduct research on risk management, financial modeling and optimization
- Develop, implement and test risk management, portfolio optimization and insurance models

MITACS Industrial Postdoctoral Research Fellow 2010 – 2012
McMaster University, Hamilton, ON, Canada
Algorithmics Inc., an IBM Company, Toronto, ON, Canada
- Conduct research on risk management and financial optimization
- Develop and implement risk management, portfolio optimization and portfolio replication models
- Lecturer for the course *Continuous Optimization Algorithms* at McMaster University

Intern, Quantitative Research Group 2008 – 2009
Algorithmics Inc., Toronto, ON, Canada
- Conducted research on credit risk optimization and portfolio replication
- Developed, implemented and tested risk management and portfolio optimization models

CTO, Project Manager (part-time) 2005 – 2011
Creatif Solutions, Hamilton, ON, Canada
- Manage and participate in scientific software development projects
- Provide IT-consulting services for local businesses
- Lead and manage IT-support projects

Senior Computer Systems Analyst (part-time) 2004 – 2010
Tetraplex Limited, Hamilton, ON, Canada
- Administered mail/web/backup/hosting/collaboration servers for a number of industrial clients
- Managed and supported application development projects
- Provided network design and deployment services

Research Assistant 2003 – 2008
Advanced Optimization Laboratory, McMaster University, Hamilton, ON, Canada
- Designed, developed and tested optimization software packages (SeDuMi and McIPM)
- Administered and maintained high-performance computational servers, workstations, PCs and all other equipment at the Advanced Optimization Laboratory

Teaching Assistant 2002 – 2009
Department of Computing and Software, McMaster University, Hamilton, ON, Canada
- *Design and Implementation of C Programs* course for 2nd year computer science students (160 students class)
- *Continuous Optimization Algorithms* course for 4th year computer science, software engineering and management students (delivered five times, 90 students per class)

Research Assistant 2001 – 2002
Center for Economic Research and Graduate Education, Prague, Czech Republic
- Designed and developed computer-based experimental economics projects with subjects interacting with each other in real time using a network of PCs
- Conducted research in e-commerce

System Administrator, Programmer 1998 – 2000
Industrial Company “Kvalitet”, Sumy, Ukraine
- Managed computer equipment and administered a local area network
- Installed and maintained office hardware/software
- Performed various programming and technical tasks

PUBLICATIONS

1. Mausser, H., and **Romanko, O.** (2012) Bias, Exploitation and Proxies in Scenario-Based Risk Minimization. *Optimization* (special issue on Optimizing Risk), Volume 61 (in press).
2. Mausser, H., and **Romanko, O.** (2012) CVaR Proxies for Optimizing Scenario-Based Value-at-Risk. Report ARPS 12-04, Algorithmics Inc., an IBM Company, Toronto
3. **Romanko, O.**, Ghaffari-Hadigheh, A., and Terlaky, T. (2012) Multiobjective Optimization via Parametric Optimization: Models, Algorithms and Applications. Chapter 5 in *Springer Proceedings in Mathematics and Statistics*, Volume 21, pp. 77-119.
4. Iscoe, I., Kreinin, A., Mausser, H., and **Romanko, O.** (2012) Portfolio Credit Risk Optimization. *Journal of Banking and Finance*., Volume 36, Number 6 (2012), pp. 1604-1615.
5. **Romanko, O.**, and Mausser, H. (2011) Robust Scenario-Based Value-at-Risk Optimization. Report ARPS 11-06, Algorithmics Inc., Toronto, submitted to *Annals of Operations Research*.
6. Burmeister, C., Mausser, H., and **Romanko, O.** (2010) Using Trading Costs to Construct Better Replicating Portfolios, Enterprise Risk Management Symposium Monograph, Society of Actuaries, Schaumburg, IL, April 2010.
7. **Romanko, O.** (2010) Multiobjective and Parametric Optimization with Applications in Finance, Ph.D. Thesis, defended on March 26, 2010.
8. Ghaffari-Hadigheh, A., **Romanko, O.**, and Terlaky, T. (2010) Bi-Parametric Convex Quadratic Optimization. *Optimization Methods and Software*, Volume 25, Issue 2 (2010), pp. 229-245.
9. Ghaffari-Hadigheh, A., **Romanko, O.**, and Terlaky, T. (2008) On Bi-Parametric Programming in Quadratic Optimization. Proceedings of the “Continuous Optimization and Knowledge-Based Technologies” Conference, Neringa, Lithuania, May 20-23, 2008.
10. Bose, C., **Romanko, O.** and Gong J. (2007) Optimization of Multi-Drug Composition for the Most Efficacious Action. Proceedings of 11th PIMS Industrial Problem Solving Workshop (IPSW), Edmonton, AB, June 11-15, 2007.
11. Ghaffari-Hadigheh, A., **Romanko, O.**, and Terlaky, T. (2007) Sensitivity Analysis in Convex Quadratic Optimization: Simultaneous Perturbation of the Objective and Right-Hand-Side Vectors. *Algorithmic Operations Research*, Volume 2, Number 2 (2007), pp. 94-111.
12. Grodzevich, O., **Romanko, O.** (2006) Discussions on Normalization and Other Topics in Multi-Objective Optimization. Proceedings of Fields-MITACS Industrial Problem-Solving Workshop (FMIPW), August 14-18, 2006, pp. 89-102.
13. **Romanko, O.** (2004) An Interior Point Approach to Quadratic and Parametric Quadratic Optimization, M.Sc. Thesis, defended on August 19, 2004.
14. Ghaffari-Hadigheh, A., **Romanko, O.**, and Terlaky, T. (2003) Simultaneous Perturbation Parametric Analysis in Convex Quadratic Optimization. Technical Report #2003/6, Advanced Optimization Laboratory, McMaster University, Hamilton.

AWARDS AND HONOURS

- **Third Place at INFORMS Interactive Presentation Competition**, Charlotte, NC 2011
- **MITACS Industrial Postdoctoral Fellowship**, McMaster University, Hamilton, ON 2010
- **Second Place at MITACS Poster Competition**, Fredericton, NB 2009
- **MITACS ACCELERATE Internship at Algorithmics Inc.**, Toronto, ON 2009
- **First place at International Forum of Young Researchers**, St. Petersburg, Russia 2009
- **MITACS ACCELERATE Internship at Algorithmics Inc.**, Toronto, ON 2008
- **First Place at MITACS Poster Competition**, Montreal, QC 2008
- **Second prize at SIMUL8 Simulation Competition**, Quebec, QC 2008
- **First place at International Forum of Young Researchers**, St. Petersburg, Russia 2008
- **Diploma in Operational Research**, Canadian Operational Research Society 2007
- **Nortel OGSST Graduate Scholarship,** McMaster University, Hamilton, ON 2007
- **First Place at MITACS Poster Competition**, Winnipeg, MB 2007
- **VISUAL8 Modelling Competition Winning Team Member**, London, ON 2007
- **International Operations Research Case Competition Winning Team Leader,** Simon Fraser University, Vancouver, BC 2007

- **RIM Ontario Graduate Scholarship,** McMaster University, Hamilton, ON 2006
- **Ontario Graduate Scholarship,** McMaster University, Hamilton, ON 2005
- **Sherman Graduate Scholarship,** McMaster University, Hamilton, ON 2004
- **Best Student Paper Prize,** Canadian Operational Research Society 2004
- **Ashbaugh Graduate Scholarship,** McMaster University, Hamilton, ON 2003
- **Citigroup Foundation Scholarship,** CERGE, Prague, Czech Republic 2002
- **CERGE Performance Scholarship,** CERGE, Prague, Czech Republic 2001

SOFTWARE

- Copyright (2004-2008) on SeDuMi open source software package for solving optimization problems over symmetric cones (with T. Terlaky, I. Pólik and Y. Zinchenko), `http://sedumi.mcmaster.ca`
- Development of McIPM software package for solving linear and quadratic optimization problems (joint with L. Zhu)
- Development of CaNEOS Server for Optimization – Internet-based client-server optimization engine

COMPUTER SKILLS

System Administration:	MS Windows, Unix/Linux, Mac OS
Programming Languages:	C/C++, Pascal, Fortran, HTML, XML, JavaScript, Perl, PHP, SQL, FoxPro/dBASE
Mathematical and Statistical Software:	Matlab, Maple, Mathematica, Mathcad, Cplex, Mosek, Ipopt, Minos, AMPL, AIMMS, Simul8, R, Stata, E-views, TSP

LEADERSHIP AND ACTIVITIES

- Organizer and Practice Chair of CORS/MOPGP International Joint Conference 2012, Niagara Falls, ON, Canada, June 11-13, 2012.
- Organizer of Quantitative Finance & Risk Management Workshop, Toronto, March 1-3, 2012.
- Organizer of Industrial Academic Workshop on Optimization in Finance and Risk Management, Fields Institute, Toronto, ON, Canada, October 3-4, 2011
- Graduate Student Representative at the Department of Computing and Software, McMaster University, Hamilton, ON, Canada (2005-2008)
- Technical support and conference management software development for MOPTA and ICCOPT conferences, McMaster University, Hamilton, ON, Canada (2003-2007)
- Served as the Vice-President of Youth Environmental NGO “Eco”, Sumy, Ukraine (1998-2000)
- Organizing Committee Chair of the International Student Conference “Economics for Ecology”, Sumy, Ukraine (1999, 2000)

MEMBERSHIP

- Professional Risk Managers’ International Association (PRMIA)
- Canadian Operational Research Society (CORS)
- Institute for Operations Research and the Management Sciences (INFORMS)
- Mathematical Optimization Society (MOS)
- Society for Industrial and Applied Mathematics (SIAM)

LANGUAGE SKILLS

- English (fluent), Ukrainian, Russian (both native), Czech (intermediate)

INTERESTS

- *Sports*: mountain hiking, canoeing, cross-country and downhill skiing, tennis, swimming
- *Traveling*: traveled to the majority of European countries, summer work in the UK and Russia
- *Graphic arts*: computer graphics and art, web-design