

OLEKSANDR ROMANKO

Toronto, ON, Canada

Web: <http://www.romanko.ca>

WORK EXPERIENCE

Senior Research Analyst, Quantitative Research Group 2012 – present

Risk Analytics, Watson Financial Services, IBM, Toronto, ON, Canada

- Conduct research on risk management, financial modeling and optimization
- Develop, implement and test risk management, portfolio optimization and insurance models

Adjunct Professor (part-time) 2013 – present

University of Toronto, Toronto, ON, Canada

- *Computational Finance and Risk Management* graduate course (delivered seven times)
- *Introduction to Data Science and Analytics* graduate course (delivered five times)

Honorary Director, Master of Business and Management in Artificial Intelligence and Data Analytics Program (part-time) 2018 – present

Kyiv School of Economics, Kyiv, Ukraine

- Develop, manage and lead professional master program in AI

Adjunct Professor (part-time) 2015 – present

Ukrainian Catholic University, Lviv, Ukraine

- *Introduction to Data Science and Business Analytics* graduate course (delivered three times)

Lecturer (part-time) 2014 – 2019

McMaster University, Hamilton, ON, Canada

- *Computational Finance* graduate course (delivered five times)

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

- Research Assistant** 2003 – 2008
 Advanced Optimization Laboratory, McMaster University, Hamilton, ON, Canada
- Designed, developed and tested optimization software packages
 - Administered and maintained high-performance computational servers and workstations
- 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
 - *Continuous Optimization Algorithms* course for 4th year computer science, software engineering and management students (delivered five times)
- 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

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*
- 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*
- 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*

PUBLICATIONS AND PATENTS

1. Mausser, H., and **Romanko, O.** (2018) Long-only Equal Risk Contribution Portfolios for CVaR under Discrete Distributions. *Quantitative Finance*, Volume 18, Issue 11, pp. 1927-1945.
2. **Romanko, O.**, and Mausser, H. (2017) Applications of Conic Linear Optimization in Financial Engineering. Chapter in *Advances and Trends in Optimization with Engineering Applications*, T. Terlaky, M. Anjos, and S. Ahmed (Eds.), MOS-SIAM Series, SIAM, Philadelphia, PA.
3. **Romanko, O.**, and Mausser, H. (2016) Robust Scenario-Based Value-at-Risk Optimization. *Annals of Operations Research*, Volume 237, Issue 1, pp. 203-218.
4. Lustig I.J., Mausser, H., and **Romanko, O.**, IBM Corp. (2014) Numerical Scaling Method for Mathematical Programs with Quadratic Objectives and/or Quadratic Constraints, US Patent Application 14/189976.
5. Mausser, H., and **Romanko, O.** (2014) Computing Equal Risk Contribution Portfolios. *IBM Journal of Research and Development*, Volume 58, Issue 4, pp. 5:1-5:12.
6. Mausser, H., and **Romanko, O.** (2014) CVaR Proxies for Optimizing Scenario-Based Value-at-Risk. *Journal of Industrial and Management Optimization*, Volume 10, Issue 4, pp. 1109-1127.
7. Mausser, H., and **Romanko, O.** (2012) Bias, Exploitation and Proxies in Scenario-Based Risk Minimization. *Optimization* (special issue on Optimizing Risk), Volume 61, Issue 10, pp. 1191-1219.

8. **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.
9. Iscoe, I., Kreinin, A., Mausser, H., and **Romanko, O.** (2012) Portfolio Credit Risk Optimization. *Journal of Banking and Finance.*, Volume 36, Number 6, pp. 1604-1615.
10. 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.
11. **Romanko, O.** (2010) Multiobjective and Parametric Optimization with Applications in Finance, Ph.D. Thesis, defended on March 26, 2010.
12. Ghaffari-Hadigheh, A., **Romanko, O.**, and Terlaky, T. (2010) Bi-Parametric Convex Quadratic Optimization. *Optimization Methods and Software*, Volume 25, Issue 2, pp. 229-245.
13. 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.
14. 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.
15. 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, pp. 94-111.
16. 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.
17. **Romanko, O.** (2004) An Interior Point Approach to Quadratic and Parametric Quadratic Optimization, M.Sc. Thesis, defended on August 19, 2004.
18. 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

- **IBM Outstanding Technical Achievement Award**, IBM, Toronto, ON 2014
- **Eminence and Excellence IBM Award to Quantitative Research Group Members of IBM Risk Analytics**, IBM, Toronto, ON 2012
- **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
- **Mitacs Accelerate Internship at Algorithmics Inc.**, Toronto, ON 2008
- **First Place at Mitacs Poster Competition**, Montreal, 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
- **First prize at SIMUL8 Simulation Modelling Competition**, 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++, Python, Perl, PHP, Pascal, HTML, XML, JavaScript, SQL

Mathematical and Statistical Software: Matlab, R, Maple, Mathematica, Cplex, Mosek, Gurobi, Ipopt, Minos, AMPL, AIMMS, Simul8, Stata, E-views

LEADERSHIP AND ACTIVITIES

- Organizer of 4th Industrial-Academic Workshop on Optimization and Artificial Intelligence in Finance, Fields Institute, Toronto, ON, Canada, November 12-13, 2018.
- Board of Directors, Ukrainian Canadian Congress - Toronto branch, Toronto, ON, Canada (2016-2017).
- Organizer of 3rd Industrial-Academic Workshop on Optimization in Finance and Risk Management, Fields Institute, Toronto, ON, Canada, October 5-6, 2015.
- Organizer and lecturer for "Introduction to Data Science, Business Analytics, Big Data and Artificial Intelligence" two-day courses at Kyiv Polytechnic University and Ukrainian Catholic University, Ukraine (2014-2017).
- Organizing partner of PRMIA Risk Management Student Case Competition, Toronto, ON, Canada (2014-2015).
- Member of PRMIA Toronto Chapter Steering Committee (2013-2015).
- Organizer of 2nd Industrial-Academic Workshop on Optimization in Finance and Risk Management, Fields Institute, Toronto, ON, Canada, September 23-24, 2013.
- 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).
- 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).