OLEKSANDR ROMANKO

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# WORK EXPERIENCE

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| --- | --- |
| 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

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| --- | --- |
| Adjunct Professor | (part-time) 2013 – present |

University of Toronto, Toronto, ON, Canada

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

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| --- | --- |
| Lecturer | (part-time) 2014 – present |

McMaster University, Hamilton, ON, Canada

* *Computational Finance* graduate course (delivered four times)

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| Adjunct Professor | (part-time) 2015 – present |

Ukrainian Catholic University, Lviv, Ukraine

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

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| Mitacs Industrial Postdoctoral Research Fellow | 2010 – 2012 |

­McMaster University, Hamilton, ON, Canada

[Algorithmics Inc.](http://www.algorithmics.com), 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

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| Intern, Quantitative Research Group | 2008 – 2009 |

­[Algorithmics Inc.](http://www.algorithmics.com), Toronto, ON, Canada

* Conducted research on credit risk optimization and portfolio replication
* Developed, implemented and tested risk management and portfolio optimization models

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| --- | --- |
| CTO, Project Manager | (part-time) 2005 – 2011 |

[Creatif Solutions](http://www.creatifsolutions.com), Hamilton, ON, Canada

* Manage and participate in scientific software development projects
* Provide IT-consulting services for local businesses
* Lead and manage IT-support projects

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| --- | --- |
| Senior Computer Systems Analyst | (part-time) 2004 – 2010 |

[Tetraplex Limited](http://www.tetraplex.com), Hamilton, ON, Canada

* Administered mail/web/backup/hosting/collaboration servers for a number of industrial clients
* Managed and supported application development projects

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| Research Assistant | 2003 – 2008 |

[Advanced Optimization Laboratory](http://optlab.mcmaster.ca), [McMaster University](http://www.mcmaster.ca), Hamilton, ON, Canada

* Designed, developed and tested optimization software packages
* Administered and maintained high-performance computational servers and workstations

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| Teaching Assistant | 2002 – 2009 |

[Department of Computing and Software](http://www.cas.mcmaster.ca), [McMaster University](http://www.mcmaster.ca), 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)

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| --- | --- |
| Research Assistant | 2001 – 2002 |

[Center for Economic Research and Graduate Education](http://www.cerge-ei.cz), 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

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| System Administrator, Programmer | 1998 – 2000 |

[Industrial Company “Kvalitet”](http://www.kvalitet.com.ua), Sumy, Ukraine

* Managed computer equipment and administered a local area network
* Installed and maintained office hardware/software
* Performed various programming and technical tasks

# EDUCATION

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| --- | --- |
| Ph.D. in Computer Science | 2004 – 2010 |

[Advanced Optimization Laboratory](http://optlab.mcmaster.ca), [Department of Computing and Software](http://www.cas.mcmaster.ca),

[McMaster University](http://www.mcmaster.ca), Hamilton, ON, Canada

Ph.D. Project: *Multiobjective and Parametric Optimization with Applications in Finance*

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| Master of Science in Computer Science | 2002 – 2004 |

[Advanced Optimization Laboratory](http://optlab.mcmaster.ca), [Department of Computing and Software](http://www.cas.mcmaster.ca),

[McMaster University](http://www.mcmaster.ca), Hamilton, ON, Canada

M.Sc. Thesis: *Quadratic and Parametric Quadratic Optimization*

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| Master of Arts in Economics | 2000 – 2002 |

[Center for Economic Research and Graduate Education (CERGE)](http://www.cerge-ei.cz) / University of

the State of New York graduate program, Charles University, Prague, Czech Republic

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| Bachelor of Science in Systems Engineering, with distinction | 1993 – 1998 |

[Sumy State University](http://www.sumdu.edu.ua/eng/), Sumy, Ukraine

B.Sc. Thesis: *Microprocessor Control System of the Electronic Microscope PEM-125K*

# PUBLICATIONS AND PATENTS

1. Mausser, H., and Romanko, O. (2017) Long-only Equal Risk Contribution Portfolios for CVaR under Discrete Distributions. Submitted to *Quantitative Finance*.
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
* 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

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

LEADERSHIP AND ACTIVITIES

* Board of Directors, Ukrainian Canadian Congress - Toronto branch, Toronto, ON, Canada (2016).
* Education Projects Coordinator, Canada Ukraine International Assistance Fund, Toronto, ON, Canada (2014-2017).
* 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 (2014-2016).
* 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).
* 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).

LANGUAGE SKILLS

* English (fluent), Ukrainian (native), Russian (fluent), Czech (basic)