

Budapest, January 2, 2019

CURRICULUM VITAE of Marianna E.-Nagy

PERSONAL INFORMATION:

Work address:

Department of Differential Equations
Institute of Mathematics
Budapest University of Technology and Economics
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PERSONAL DATA:

Legal name: Marianna Eisenberg-Nagy
Maiden Name: Marianna Nagy
Place and date of birth: Moscow (Russia), June 5, 1981
Citizenship: Hungarian

PLACE OF WORK:

01/07/2014 – Associate professor, Department of Differential Equations,
Budapest University of Technology and Economics, Hungary

01/09/2012 – 30/06/2014 Assistant professor, Department of Differential Equations,
Budapest University of Technology and Economics, Hungary

01/09/2011 – 31/08/2012 Postdoctoral Research Fellow,
Research group Algorithms, Combinatorics and Optimization,
CWI, Amsterdam, The Netherlands

01/09/2009 – 31/08/2011 Postdoctoral Research Fellow,
Department of Econometrics and Operations Research,
Tilburg University, Tilburg, The Netherlands

01/09/2007 – 31/08/2009 Lecturer, Department of Operations Research,
Eötvös Loránd University of Sciences, Budapest, Hungary

EDUCATION:

- 2004 – 2007 Ph.D. student in Applied Mathematics, Eötvös Loránd University of Sciences, Faculty of Natural Sciences (ELTE-TTK), Budapest, Hungary
Supervisor: Tibor Illés, Department of Operational Research
Defence: December 2009, official diploma date: February 2010
- 1999 – 2004 M.Sc. in Applied Mathematics, Eötvös Loránd University of Sciences, Faculty of Natural Sciences (ELTE-TTK), Budapest, Hungary
specialised in operational research, numerical methods of partial differential equation, mathematical modelling
Supervisor: Tibor Illés, Department of Operational Research

RESEARCH INTEREST:

Semidefinite and copositive programming, algebraic techniques in polynomial optimization
Linear programming, linear complementarity problems and its applications
Applications of optimization

AWARDS:

- Gyula Farkas Memorial Award from János Bolyai Mathematical Society, Hungary, 2011
- Hungarian National Student's Research Conference
first prize in Applied Mathematics, 2005
- Excellent Student of the Faculty, 2004

SCHOLARSHIPS:

- 2004 - 2007 Hungarian Government PhD Scholarship
- 2005 - 2007 MOL (Hungarian Oil Company) research scholarship
- February 1- March 1, 2005 Partnerships for Tomorrow Program II, McMaster University, Department of Computing and Software, Hamilton, Canada
- October 1-7, 2006 Hungarian Science and Technology Foundation Scholarship, University of Maribor and Ljubljana, Slovenia

SUMMER SCHOOLS, STUDY VISITS:

- 17th European Consortium for Mathematics in Industry Modelling Week, August 22-31, 2003, Bristol, England.
- EURO Summer Institute on Optimization and Data Mining, July 9-25, 2004, Ankara, Turkey (Conference talk: ‘A Mizuno–Todd–Ye type predictor-corrector algorithm for linear complementarity problems with $\mathcal{P}_*(\kappa)$ -matrices’).
- ADONET Doctoral school on: Optimization over Polynomials and Semidefinite Programming, September 12-16, 2005, University of Klagenfurt, Austria.
- Global Optimization Course - Models, Algorithms, Software and Application, March 26-28, 2007, Győr, Hungary.
- Robust Optimization Summer School, July 2-7, 2007, Cortina D’Ampezzo, Italy.
- HPOPT 2008 - International Workshop on High Performance Optimization Techniques, Algebraic Structure in Semidefinite Programming, June 11-13, 2008, Tilburg, The Netherlands.
- HPOPT 2010 - International Workshop on High Performance Optimization Techniques, Algebraic Structure in Semidefinite Programming, June 14-16, 2010, Tilburg, The Netherlands.

TALKS AT CONFERENCES:

- XXVI. Hungarian Operation Research Conference, May 26-28, 2004, Győr, Hungary.
- Veszprém Optimization Conference: Advanced Algorithms (VOCAL), December 13-15, 2004, Veszprém, Hungary.
- 17th EURO Mini Conference: Continuous Optimization in Industry, June 29 - July 1, 2005, Pécs, Hungary.
- International Conference in Memoriam Gyula Farkas, August 23-26, 2005, Cluj-Napoca, Romania.
- EURO XXI, July 2-5, 2006, Reykjavik, Iceland.
- Veszprém Optimization Conference: Advanced Algorithms (VOCAL), December 13-15, 2006, Veszprém, Hungary.
- XXVII. Hungarian Operation Research Conference, June 7-9, 2007, Balatonőszöd, Hungary.
- EURO XXII, July 7-9, 2007, Prague, Czech Republic.
- The 9th International Symposium on Operations Research in Slovenia, September 26-28, 2007, Nova Gorica, Slovenia.
- SIAM Conference on Optimization, May 10-13, 2008, Boston, USA. (invited talk)
- EURO Mini Conference, Continuous Optimization and Knowledge-Based Technologies, May 20-23, 2008, Neringa, Lithuania.
- MOPTA 2009 - Modelling and Optimization: Theory and Applications, August 19-21, 2009, Bethlehem, USA.

- 20th ISMP Conference, August 23-28, 2009, Chicago, USA. (invited talk)
- INFORMS 2010, November 7-10, 2010, Austin, Texas, USA. (invited talk)
- Veszprém Optimization Conference: Advanced Algorithms (VOCAL), December 13-15, 2010, Veszprém, Hungary.
- SIAM Conference on Optimization, May 16-19, 2011, Darmstadt, Germany. (invited talk)
- 3rd SDP days, June 30-July 1, 2011, CWI, Amsterdam, The Netherlands. (invited talk)
- XXIX. Hungarian Operation Research Conference, September 28-30, 2011, Balatonőszöd, Hungary.
- 21st International Symposium on Mathematical Programming, August 19-24, 2012, Berlin, Germany. (invited talk)
- Semidefinite optimization: theory and application, Workshop of Hungarian Academy of Science, November 21., 2012, Budapest, Hungary. (invited talk)
- Veszprém Optimization Conference: Advanced Algorithms (VOCAL), December 11-14, 2012, Veszprém, Hungary.
- XXX. Hungarian Operation Research Conference, June 10-13, 2013, Balatonőszöd, Hungary.
- 26th EURO, July 1-4, 2013, Rome, Italy.
- Veszprém Optimization Conference: Advanced Algorithms (VOCAL), December 14-17, 2014, Veszprém, Hungary.

LECTURES AT SEMINARS:

- AdvOL Optimization Seminar, McMaster University, February 14, 2005, Hamilton, Canada.
- Operations Research Seminar, MTA SZTAKI (Computer and Automation Research Institute of the Hungarian Academy of Science), November 5, 2005, Budapest, Hungary.
- Friday Lunchtime Seminar, University of Strathclyde, February 1, 2008, Glasgow, UK.
- Department of Econometrics and Operations Research, Tilburg University, February 3, 2010, Tilburg, The Netherlands.
- Operations Research Seminar, University of Groningen, March 4, 2011, Groningen, The Netherlands.
- Seminar Combinatorics and Optimization, CWI, June 8, 2011, Amsterdam, The Netherlands.

PUBLICATIONS:

Thesis

- Linear optimization: theory and primal-dual interior point algorithms [in Hungarian], *Msc Thesis*, Department of Operations Research, Eötvös Loránd University of Sciences, Budapest, Hungary, 2004.
- Interior point algorithms for general linear complementarity problems, *Phd Thesis*, Department of Operations Research, Eötvös Loránd University of Sciences, Budapest, Hungary, 2009.

Papers

In English:

- Erik Brodin, Markus Conzelmann, Peter Gravaas, Jevgenij Jegorovs, Tapio Leppälampi, Morten Nalholm, Marianna Nagy, Piotr Ptak, and Rainer Stütz, *Self-location of climate sensors in coffee plantations*, Instructor: Aureli Alabert, Proceedings of the 17th ECMI Modelling Week, 2003.
- Tibor Illés, and Marianna Nagy, *A Mizuno–Todd–Ye type predictor-corrector algorithm for sufficient linear complementarity problems*, European Journal of Operational Research, 181(3), 1097-1111, 2007.
- Tibor Illés, Marianna Nagy, and Tamás Terlaky, *EP theorem for the dual linear complementarity problem*, Journal of Optimization Theory and Applications, 140(2), 233-238, 2009.
- Tibor Illés, Marianna Nagy, and Tamás Terlaky, *A polynomial path-following interior point algorithm for general linear complementarity problems*, Journal of Global Optimization, 47(3), 329-342, 2010.
- Tibor Illés, Marianna Nagy, and Tamás Terlaky, *Polynomial interior point algorithms for general linear complementarity problems*, Algorithmic Operations Research, 5, 1-12, 2010.
- Etienne de Klerk, and Marianna E.-Nagy, *On the complexity of computing the handicap of a sufficient matrix*, Mathematical Programming B, 129(2), 383-402, 2011.
- Etienne de Klerk, Marianna E.-Nagy, and Renata Sotirov, *On semidefinite programming bounds for graph bandwidth*, Optimization Methods and Software, 28(3), 485-500, 2013.
- Marianna E.-Nagy, Monique Laurent, Antonios Varvitsiotis, *Complexity of the positive semidefinite matrix completion problem with a rank constraint*, In Discrete Geometry and Optimization, Vol. 69 of Fields Institute Communications, K. Bezdek, A. Deza and Y. Ye (eds), Springer, 105-120, 2013.
- Etienne de Klerk, Marianna E.-Nagy, Renata Sotirov, and Uwe Truetsch, *Symmetry in RLT-type relaxations for the quadratic assignment and standard quadratic optimization problems*, European Journal of Operational Research, 233(3), 488-499, 2014.
- Marianna E.-Nagy, Monique Laurent, Antonios Varvitsiotis, *Forbidden minor characterizations for low-rank optimal solutions to semidefinite programs over the ellipsope*, Journal of Combinatorial Theory, Series B, 108, 40-80, 2014.

- András Telcs, Marianna E.-Nagy, *Expected lifetime and capacity*, In Fractal Geometry and Stochastics, C. Bandt, K.J. Falconer, M. Zähle (eds), Vol. 70, Springer, 327-340, 2015.
- Marianna E.-Nagy, Tibor Illés, Gábor Lovics, *Market Exchange Models and Geometric Programming*, Central European Journal of Operations Research, 2018. <https://doi.org/10.1007/s10100-018-0582-3>

In Hungarian:

- Tibor Illés, and Marianna Nagy, *New variant of the Mizuno–Todd–Ye predictor–corrector algorithm for sufficient matrix linear complementarity problem* [In Hungarian: Mizuno–Todd–Ye típusú prediktor–korrektor algoritmus elégséges mátrixú lineáris komplementaritási feladatokra], *Alkalmazott Matematikai Lapok* 22, No. 1, 41-61, 2005.

Book chapter

- Tibor Illés, Marianna Nagy, and Tamás Terlaky, Interior point methods in linear optimization [In Hungarian: Belsőpontos módszerek a lineáris optimalizálásban], chapter in *Informatikai Algoritmusok II.*, editor: Antal Iványi, ELTE Eötvös Kiadó, 2006.

PROJECTS:

- June 1 - December 31, 2014 Cooperation with the group of Dávid Raisz at Department of Electric Power Engineering, Budapest University of Technology and Economics. (GOP-1.1.1-11-2012-0583 project member) Topic: Day-ahead power markets.
- April 1 - December 31, 2013 Cooperation with the group of Do Van Tien at Department of Networked Systems and Services, Budapest University of Technology and Economics. (GOP-1.1.1-11-2012-0583 project member) Topic: Optimization of multimodal public transportation.
- 2005 - 2008 Member of Hungarian Research Fund project No. T049789 (supervisor: Tibor Illés) Topic: Structured nonlinear programming problems: theory, algorithms and applications.
- 2005 - 2007 Member of the research group of Tibor Illés. We worked at MOL Plc. on production planning problems.
- 2006 - 2007 Member of Hungarian-Slovenian R&D Cooperation Programme project No. SLO-4/05 (supervisor: Tibor Illés and Martin Juvan) Topic: Semidefinite programming and its applications.
- 2017 - 2020 Member of Research project based on Hungarian-Slovenian cooperation No. SNN 125700 (supervisor: Tibor Illés and Janez Povh) Topic: Extending first- and second order algorithms for nested classes of optimization problems to solve computationally challenging industrial questions.

SCIENTIFIC REFEREEING:

Acta Cybernetica, Alkalmazott Matematikai Lapok, Applied Mathematics and Computation, Central European Journal of Operations Research, Computational Optimization and Applications, European Journal of Operational Research, Journal of Industrial and Management Optimization, Mathematics of Operations Research, Numerical Mathematics: Theory, Methods and Applications, Optimization, Optimization and Engineering, Optimization Letters, Optimization Methods and Software

COMPUTER SKILLS:

Matlab, Maple, Gams, (C++)

LANGUAGES:

English (fluent), Russian (elementary), Hungarian (native)