

CURRICULUM VITAE OF YURII NESTEROV

Fields of expertise: Numerical methods for solving problems of nonlinear and convex optimization, and problems of finding equilibrium in complex systems. The main attention is paid to:

- Development of numerical schemes with the best possible provable efficiency bounds.
- Establishing lower complexity bounds for different types of optimization problems.
- Discovering the new ways of using the problem structure.
- Creating tractable models in different application domains (e.g. optimal design of mechanical structures, detecting and treating traffic congestion, behavioral microeconomics, etc.).

Bibliographical data	Citation Index	Hirsh Index	Papers
Web of Science:	1815	21	88
Google Scholar:	14132	43	104 (5 citations at least)

Monographs: five.

International prizes

- SIAM outstanding paper award (2014), (Engineering) †
- Francqui Chair (University of Liege, 2012)
- EUROPT fellow (2010)
- John von Neumann Theory Prize (INFORMS and Mathematical Programming Society, 2009), (Operations Research and Management) †
- Charles Broyden prize for the best paper (Optimization Methods and Software, 2009)
- Dantzig prize (SIAM and Mathematical Programming Society, 2000) , (Optimization) †

†: Highest international recognition in the field.

Plenary and invited talks at important international conferences (last 7 years)

1. International Conference on Neural Information Systems (NIPS), Montreal, Dec.2014 (plenary)
2. 4th IMA conference, Birmingham, Sept. 2014 (plenary)
3. SIAM Conference on Optimization, San Diego (USA), May 2014 (invited)
4. 10th Brazilian workshop on Continuous Optimization, Florianopolis (Brazil), Mar. 2014 (plenary)
5. International workshop Low-dimensional Structure in High-dimensional Systems, Durham, September 2013 (plenary)
6. International conference on continuous optimization (SIAG), Lisbon, August 2013 (plenary)

7. International Symposium on Mathematical Programming, Berlin, Aug.2012 (invited)
8. International Congress on Computational and Applied Mathematics, Gent, July 2012 (plenary)
9. International workshop "Advances in Large-scale optimization", Edinburgh, May 2012 (plenary)
10. International Conference on Operations Research, Zurich, August 2011, (semi-plenary)
11. International conference "Foundations of Computational Mathematics", Budapest, July 2011, (semi-plenary)
12. International Conference on Neural Information Systems (NIPS), Vancouver, Dec.2010 (plenary)
13. International Conference on Optimization and Applications (CIRM), Barcelona, Nov.2010 (plenary)
14. IPAM Workshop on Continuous Optimization, Los Angeles, Oct.2010 (invited)
15. International Congress of Mathematicians, Hyderabad (India), Aug.2010 (invited)
16. 20th International Symposium on Mathematical Programming, Chicago, Aug.2009 (invited)
17. 7th EUROPT Workshop on Operations Research, Remagen, July 2009 (plenary)
18. 7th Brazilian Conference on Continuous Optimization, Campinas (Brazil), Aug.2008 (plenary)
19. International conference "High Performance Optimization", Amsterdam, June 2008 (plenary).
20. INFORMS meeting on Continuous Optimization, Atlanta, Mar.2008 (plenary).

Invited advanced courses on Optimization at different European Universities (last 5 years)

- University of Liege (6 lectures), 2012.
- ENSAE ParisTech (8 lectures), 2013.
- University of Vienna (10 lectures), 2013.
- Max Planck Institute, Saarbrücken (3 lectures), 2014.
- FIM at ETH Zurich (11 lectures), 2015.

Research grants, projects, and contracts (last 10 years)

- Optimization methods for analyzing the mobile phone data (France Telecom, 2015-2016)
- New algorithms for large-scale optimization problems (MIT Seed grant, 2015-2017)
- Fast gradient methods (University of Florianopolis, MPA Rio-de-Janeiro, 2015-2017)
- Advanced research grant (ARC) "Mining and Optimization of Big Data Models" (UCL, 2014-2019)
- Advanced research grant (ARC) "Information retrieval in time evolving networks" (UCL, 2009-2014)
- Advanced research grant (ARC) "Large graphs and networks" (UCL, 2004-2008)

Personal Information

Date of birth: January 25, 1956, Moscow, Russia.

Nationality: Belgian.

Marital status: married, two sons.

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Education

1972-1977 - Undergraduate student of the Moscow State University, Russia.

Degrees

- Master Degree in Applied Mathematics, Moscow State University, Russia (1977).
- Ph. D. degree in Applied Mathematics, Institute of Control Sciences, Moscow, Russia (1984).

Professional experience

Catholic University of Louvain (UCL), Belgium

- 1993 – 2000: visiting professor, 2000 – 2003: professor, 2003-now: full professor.

Central Economical and Mathematical Institute of the Russian Academy of Sciences, Moscow

- 1977 – 1992: assistant, researcher, senior researcher.

Supervision: 5 defended PhD-students.

List of Publications

Books

- Yu. Nesterov. *Introductory Lectures on Convex Optimization*. Kluwer, Boston (2004).
- Yu. Nesterov, A. Nemirovskii. *Interior point polynomial methods in convex programming: Theory and Applications*. SIAM, Philadelphia (1994).
- E. Golshtein, E. Levner, A. Nemirovskii, Yu. Nesterov, et al., *Advanced Mathematical Methods of Optimization in Economical and Mathematical Modeling*. Nauka , Moscow (1991) (in Russian).
- Yu. Nesterov, A. Nemirovskii. Self-concordant functions and polynomial time methods in Convex Programming. CEMI, Moscow (1989).
- Yu. Nesterov. *Efficient methods of Nonlinear Programming*. Radio i Sviaz, Moscow (1989) (in Russian).

Papers in refereed journals (last 10 years)

1. Yu. Nesterov. Universal gradient methods for convex optimization problems. *Mathematical Programming*, DOI: 10.1007/s10107-014-0790-0 (2014).
2. Yu. Nesterov, V. Shikhman. Quasi-monotone subgradient methods for nonsmooth convex minimization. *JOTA*, DOI 10.1007/s10957-014-0677-5 (2014).
3. Yu. Nesterov, S. Shpirko. Primal-dual subgradient methods for huge-scale linear conic problems. *SIOPT*, **24**(3), 1444-1457 (2014).
4. Yu. Nesterov. Subgradient methods for huge-scale optimization problems. *Mathematical Programming*, **146**(1-2), 275-297 (2014) DOI 10.1007/s10107-013-0686-4.
5. O.Devolder, F.Glineur, and Yu.Nesterov. First-order methods of smooth convex optimization with inexact oracle. *Mathematical Programming*, **146**(1-2): 37-75 (2014)
6. Yu.Nesterov, A.Nemirovski. Finding the stationary states of Markov chains by iterative methods. *Applied Mathematics and Computation*, DOI: 10.1016/j.amc.2014.04.053 (2014)
7. Yu.Nesterov, V.Protasov. Optimizing the Spectral Radius. *SIAM Journal on Matrix Analysis and Applications*, **34**(3), 999-1013 (2013).
8. Yu.Nesterov, A.Nemirovski. Some first-order methods for $L1$ /nuclear norm minimization. *Acta Numerica*, **22**, 509-575 (2013).
9. Yu.Nesterov. Gradient methods for minimizing composite functions. *Mathematical Programming*, **140**, 125-161 (2013).

10. Yu.Nesterov, Yu Xia. Hessian distances and their applications in the complexity analysis of interior-point methods. *Optimization Methods and Software*, **28**(3), 543-563 (2013)
11. F.X. Orban de Xivry, Yu. Nesterov, and P. Van Dooren. Nearest stable system using successive convex approximations. *Automatica*, **49**(5), 1195-1203 (2013)
12. O. Devolder, F. Glineur, François, and Yu. Nesterov. Double Smoothing Technique for Large-Scale Linearly Constrained Convex Optimization. *SIAM Journal on Optimization*, **22**(2), 702-727 (2012).
13. Yu.Nesterov. Efficiency of coordinate-descent methods on huge-scale optimization problems. *SIOPT*, **22**(2), 341-362 (2012).
14. M.Baes, A.Del Pia, Yu. Nesterov, Sh. Onn, and R.Weismantel. Minimizing Lipschitz-continuous strongly convex functions over integer points in polytopes. *Mathematical Programming*, **134**(1), 305-322 (2012)
15. F.Babonneau, Y.Nesterov, and J.-Ph.Vial. Design and operating of gas transmission networks. *Operations Research*, **60**(1), 34-47 (2012)
16. Yu.Nesterov. Towards non-symmetric conic optimization. *Optimization Methods and Software*, **27**(4-5), 893-918 (2012)
17. V.Traag, P. Van Dooren, and Yu. Nesterov. Narrow scope for resolution-limit-free community detection. *Physical Review. E, Statistical, Nonlinear, and Soft Matter Physics*, **84**(1), 016114 (2011)
18. Yu.Nesterov, L.Scriali. Solving strongly monotone variational and quasi-variational inequalities. *Discrete and Continuous Dynamical Systems*, **31**(4), 1383-1296 (2011)
19. Yu.Nesterov. Barrier subgradient method. *Mathematical Programming*, **127**(1): 31-56 (2011).
20. J.Journee, P.Richtarik, Yu.Nesterov, and R.Sepulchre. Generalized power method for sparse principal component analysis. *Journal of Machine Learning Research*, **11**, 517-553 (2010)
21. V.Blondel, Yu.Nesterov. Polynomial-time computation of the joint spectral radius for some sets of nonnegative matrices. *SIAM J.Matrix Anal. Appl.*, **31**(3), 865-876 (2009)
22. Yu. Nesterov. Unconstrained convex minimization in relative scale. *Mathematics of Operations Research*, **34**(1), 180-193 (2009)
23. Yu. Nesterov. Primal-dual subgradient methods for convex problems. *Mathematical Programming*, **120** (1), 261-283 (2009)
24. C.Fraikin, Yu.Nesterov, and P. Van Dooren. A gradient-type algorithm optimizing the coupling between matrices. *Linear Algebra and its Applications*, **429**, 1229-1242 (2008).
25. C.Fraikin, Yu.Nesterov, and P. Van Dooren. Optimizing the coupling between two isometric projections of matrices. *SIAM J.Matrix Anal. Appl.*, **30**(1), 324-345 (2008).

26. Yu. Nesterov, A.Nemirovski. Primal central paths and Riemannian distances for convex sets. *Foundations of Computational Mathematics*, **8**, 533-560 (2008)
27. Yu. Nesterov. Accelerating the cubic regularization of Newton's method on convex problems. *Mathematical Programming*, **112**(1) 159-181 (2008)
28. Yu. Nesterov. Rounding of convex sets and efficient gradient methods for linear programming problems. *Optimization Methods and Software*, **23**(1), 109-135 (2008)
29. Yu. Nesterov. Parabolic target space and primal-dual interior-point method. *Discrete Applied Mathematics*, **156**, 2079-2100 (2008)
30. Yu.Nesterov, J.-Ph.Vial. Confidence level solutions for stochastic programming. *Automatica*, **44**(6), 1559-1568 (2008)
31. Yu. Nesterov. Characteristic functions of directed graphs and applications to stochastic equilibrium Problems. *Optimization and Engineering*, **8**, 193-214 (2007)
32. Yu. Nesterov. Modified Gauss-Newton scheme with worst-case guarantees for its global performance. *Optimization Methods and Software*, **22**(3) 469-483 (2007)
33. Yu. Nesterov. Smoothing technique and its applications in semidefinite optimization. *Mathematical Programming*, **110**(2), 245-259 (2007)
34. Yu. Nesterov. Dual extrapolation and its application for solving variational inequalities and related problems. *Mathematical Programming*, **109**(2-3), 319-344 (2007)
35. Yu. Nesterov, B. Polyak. Cubic regularization of Newton's method and its global performance. *Mathematical Programming*, **108**(1), 177-205 (2006)
36. Yu. Nesterov. Lexicographic differentiation of nonsmooth functions. *Mathematical Programming*, **104**(2-3), 669-700 (2005)
37. V. Blondel, Yu. Nesterov. Computationally efficient approximations of the joint spectral radius. *SIAM Journal of Matrix Analysis and Applications*, **27**(1), 256-272 (2005)
38. Yu. Nesterov. Excessive gap technique in nonsmooth convex minimization. *SIOPT*, **16**(1), 235-249 (2005).
39. Yu. Nesterov. Smooth minimization of non-smooth functions. *Mathematical Programming*, **103**(1), 127-152 (2005)
40. V. Blondel, Yu. Nesterov, and J. Theys. On the accuracy of the ellipsoid norm approximation of the joint spectral radius. *Linear Algebra and its Applications*, **394** (1), 91-107 (2005)