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EDITORIAL: SPECIAL ISSUE DEDICATED TO THE 70TH BIRTHDAY OF PROFESSOR YURII NESTEROV

This special issue on Recent Trends on Numerical Optimization and Their Applications is edited in honor of Professor Yurii Nesterov, a world-leading researcher in convex optimization, on the occasion of his 70th birthday for his substantial contribution to convex and numerical optimization and it real-world applications and his scientific leadership.

In 1977, Yurii obtained his master degree at Moscow State University. In 1984, Yurii obtained his Ph.D. degree at Institute of Control Sciences, Moscow. His PhD advisor was Boris Polyak, a great world leader in optimization. From 1977 to 1992, he was a researcher at the Central Economic Mathematical Institute of the Russian Academy of Sciences. Since 1993, he started his academic career as a professor at Center for Operations Research and Econometrics in Catholic University of Louvain, Belgium. Yurii's research interests are related to complexity issues and efficient methods for solving various optimization problems. The main results are obtained in different areas of convex optimization: optimal methods for smooth problems, polynomial-time interior-point methods, smoothing technique for structural optimization, complexity theory for second-order methods, optimization methods for huge-scale problems, and implementable tensor methods.

Professor Yurii Nesterov is an internationally highly recognized expert in convex optimization, especially in the development of efficient numerical algorithms for various convex feasibility problems. He is widely known as an inventor of the Fast Gradient Method (1983) and developer of Lexicographic Differentiation (1985). He is one of the creators of the modern theory of polynomial-time interior-point methods for structural convex optimization problems. In the book entitled "Interior-Point Polynomial Algorithms for Convex Programming", co-authored with A. Nemirovskii, they introduced the theory of self-concordant functions to unify global complexity results obtained for convex optimization problems including linear, second-order cone and semidefinite programming. His subsequent achievements are related to development of Smoothing Technique (2005) and promotion of the higher-order methods (2019). He is also the author of the text Introductory Lectures on Convex Optimization, which develops state-of-the-art theory at a level appropriate for introductory graduate courses. The main impact of these results for practical computations consists in an extension of abilities of the optimization methods above the limits prescribed by complexity theory.

Professor Yurii Nesterov received the George B. Dantzig Prize (2000), jointly awarded by the Mathematical Programming Society and the Society for Industrial and Applied Mathematics; received the John von Neumann Theory Prize (2009), awarded by the Institute for Operations Research and the Management Sciences; received the EURO Gold Medal (2016), awarded by The Association of European Operational Research Societies, EURO; received Frederick W. Lanchester Prize (2022), awarded by the Institute for Operations Research and the Management Sciences, and the WLA Prize, awarded by WLA (2023). He was elected a fellow of EUROPT (2010), Academia Europaea (2021), and the U.S. National Academy of Sciences (2022). In addition, he was also elected into the list of World's Top 2 Percent Scientists by Stanford/Elsevier several times. Professor Yurii Nesterov has produced dozens of master and Ph.D. students and postdoctoral fellows, most of them are now active experienced researchers in the community of applied mathematics and engineering. Up to now, he has published 150 papers, with more than 80 different coauthors, in peer-reviewed international journals according to the Scopus. These publications have received more than 13000 citations.

This Special Issue consists of two sections (Issue 2, Volume 10 and Issue 3, Volume 10). Several contributions are due to experienced researchers and many of them have shared with Yurii an intense scientific and personal collaboration. We want to thank all the Authors and Reviewers that made this Special Issue possible. It has been an honor for us to act as Guest Editors of this Special Issue and contribute to the recognition of Yurii's impact and legacy. We hope that the readers will enjoy it.

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