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PREFACE: CONTROL, OPTIMIZATION AND VARIATIONAL ANALYSIS, PART II

SIMEON REICH AND ALEXANDER J. ZASLAVSKI

This special issue on Control, Optimization and Variational Analysis is dedicated to Professor Boris Mordukhovich on the occasion of his 70th birthday. Boris Mordukhovich is an outstanding American mathematician who has made significant contributions to variational analysis, optimization, systems control, operations research, nonlinear dynamics and their applications in economics, engineering, mechanics and behavioral sciences. He introduced the notions of the basic/limiting normal cone and subdifferential, which constitute the foundation stone of variational analysis, and are now known as the Mordukhovich normal cone and subdifferential.

Boris Mordukhovich is a Distinguished University Professor of the Wayne State University, Doctor Honoris Causa of the National Sun Yat-sen University, Taiwan, Vasile Goldis University, Romania, Alicante University, Spain, University of Messina, Italy, Babes-Bolyai University, Romania, and of the Vietnam Academy of Science and Technology, Vietnam. He is also a Fellow of the Society for Industrial and Applied Mathematics, Fellow of the American Mathematical Society, Corresponding Member of the Accademia Peloritana dei Pericolanti (Italy), Honorary Professor of Harbin Normal University, Advisory Professor of Beijing Jiaotong University and Lifetime Scholar of the Wayne State University Academy of Scholars (Vice President, 2009–2010 and President, 2010–2011). Boris Mordukhovich has more than 400 publications including books and patents and is a Highly Cited Researcher in Mathematics. During his career he served as an editor and a member of the editorial board of many journals including SIAM Journal on Control and Optimization (1993–2000), Journal of Mathematical Analysis and Applications (1999–2008), Positivity (1996–present), Optimization (2000–present), Mathematics of Operations Research (2003–2016), Mathematical Programming, Series B (2005– 2008), Optimization Letters (2006-present), Nonlinear Analysis: Theory, Methods, Applications (2006–2016), Journal of Optimization Theory and Applications (2010–present), SIAM Journal on Optimization (2010–present), Applicable Analysis (2010–present), Journal of Global Optimization (2013–present), Set-Valued and Variational Analysis (2014-present), Set-Valued Analysis (1999–2008) and others. He was a Founding Editor (2008) and Co-Editor-in-Chief (2009-2014) of the journal Set-Valued and Variational Analysis. At present he is Co-Editor-in-Chief of the journal Applied Analysis and Optimization.

In this special issue, we present papers authored by a selected group of experts in the areas of control, optimization and variational analysis. Most of the papers collected here have been contributed by former students, collaborators, friends and colleagues of Boris, who have been influenced by his research. The second part of the special issue consists of fifteen papers contributed by well-known experts in control, optimization and variational analysis from China, France, Germany, Israel, Italy, Japan, Morocco, Portugal, Russia, Spain, Taiwan, USA and Vietnam.

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These papers cover a wide spectrum of important problems and topics of current research interest in control, optimization and variational analysis such as optimality conditions for strong semivectorial bilevel programming problems, finite element error estimates for optimal control problems with pointwise tracking, sufficiency of the Pontryagin Maximum Principle for L_1 minimizers and affine control systems, optimal strategies for psoriasis control model, inverse problems in variational inequalities by minimizing energy, Hadamard differentiability of the solution map in thermoviscoplasticity, feedforward optimal control for precise displacement of a rigid body, necessary conditions for solutions of set optimization problems with respect to variable domination structures, sufficient optimality conditions for non-linear delayed optimal control problems, necessary and sufficient conditions for optimal control problems subject to Hessenberg differential algebraic equations of arbitrary index and mixed control-state constraints, vector representation of preferences on σ -algebras and fair division in saturated measure spaces, strong convergence of Halpern type iterations for a finite family of generalized demimetric mappings in a Hilbert space, an extension of the Polyak convexity principle with application to nonconvex optimization, the generalized sequential normal compactness in variational analysis and necessary and sufficient turnpike conditions.

Therefore we feel that this special issue will be very valuable for many mathematicians who are interested in recent developments in control, optimization and variational analysis as well as their numerous applications.

Simeon Reich and Alexander J. Zaslavski, Editors

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