

Editor's award

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EDITOR'S AWARD

A year ago the Editorial Board of the Kybernetika Journal decided to found the honorary "Editor's Award," to be granted annually to the authors of one or two papers published during the respective year. The aim of establishing the award is to consequently increase the prestige of publishing in our Journal. The procedure is rather simple; namely, a committee appointed by the editor-in-chief selects the winner(s) based on proposals from the responsible members of the editorial board.

For the year 2013 two papers were selected:

B. S. Mordukhovich and J. V. Outrata. *Tilt stability in nonlinear programming under Mangasarian-Fromovitz constraint qualification*.
Kybernetika 49 (2013), 3, 446–464.

F. Carravetta, P. Palumbo, and P. Pepe. *Memoryless solution to the optimal control problem for linear systems with delayed input*.
Kybernetika 49 (2013), 4, 568–589.

The first paper, *Tilt stability in nonlinear programming under Mangasarian-Fromovitz constraint qualification*, is written by the recognised experts in mathematical programming, Boris S. Mordukhovich and Jiří V. Outrata. The topic of tilt stability in nonlinear programming (NLP) plays an important role in both theoretical and numerical aspects of optimisation and has thus attracted considerable research efforts in recent years. Using the characterisation of tilt stability by generalised Hessian, the authors first characterise tilt stability for NLP under the Mangasarian-Fromovitz Constraint Qualification (MFCQ). In order to obtain the description in terms of initial problem data, the calculus of generalised Hessians is further employed. Necessary and sufficient conditions for NLP under MFCQ and Constant Rank Constraint Qualification are derived in terms of initial data. This result is related to Strong Second-Order Sufficient Condition and some examples are provided. The article is a valuable contribution to modern Variational Analysis and the scope of its readers is not limited to experts in NLP.

The editors appreciated the paper as a highly mathematical contribution that perfectly represents one of Kybernetika Journal's crucial topics. The authors are true experts in the area. The paper provides new results that solve some open problems.

The second paper, *Memoryless solution to the optimal control problem for linear systems with delayed input* investigates the optimal control problem for time-invariant linear

systems with an arbitrary constant time-delay in the input channel. More specifically, the finite dimensional, implementable solution of the infinite horizon optimal control problem for linear time-invariant systems with a single, arbitrarily large, time-delay in the input channel is provided. A state feedback is provided for the infinite-horizon case with a quadratic cost function. The solution is memoryless, except at an initial time interval of measure equal to the time-delay. If the initial input is set equal to zero, then the optimal feedback control law is memoryless from the beginning. Stability results are established for the closed loop system, in the scalar case. As the solution is memoryless, it is the easiest possible one as far as implementable problems are concerned.

The editors appreciated the paper as a well-written contribution to the area of Control Theory which is another topic typical for the *Kybernetika* Journal. The paper is equipped with strong theoretical background and has application potential. Significance of its contribution stems from the fact that memoryless solution to the infinite horizon optimal control problem, for linear time-invariant systems with input delay, have not been properly addressed previously in the literature. The team of authors combines both young and apparently perspective researchers with renowned established personalities. To quote one of the referees: "The paper is interesting and well-organised and written. The motivation of the paper is given and is clear."

Let us briefly introduce here the authors of the awarded papers.

Boris Mordukhovich received his M.Sc. and Ph.D. in Applied Mathematics from Belarus State University in Minsk. He is currently Distinguished University Professor at Wayne State University, Detroit, Michigan. He has received many international awards including multiple Doctor Honoris Causa from universities and research centres the world over, and has given numerous plenary talks at international conferences. Among his main achievements is the two-volume monograph "Variational Analysis and Generalized Differentiation" (2006) published by Springer in the most prestigious Grundlehren (Fundamental Principles of Mathematical Sciences) series. His current research interests include Variational and Nonlinear Analysis, Optimisation, Control Theory, and various applications. home page: <http://www.math.wayne.edu/~boris>

Jiří V. Outrata was born in Prague on June 13, 1947. He received his M.S. degree from the Czech Technical University in 1971, the Ph.D. degree in Cybernetics in 1976 and the DrSc. degree in Mathematics in 1991, both from the Academy of Sciences of the Czech Republic. Since 1976 he has been with the Institute of Information Theory and Automation of the Academy of Sciences of the Czech Republic, but he also spent several years as visiting professor at the universities in Bayreuth, Jena and Erlangen. His research interests encompass Optimisation, Duality Theory and, above all, Modern Variational Analysis. He has published two books and more than 100 papers in international journals and proceedings of international conferences. In 2007 he was awarded the Honorary Medal of Bernard Bolzano and in 2013 he became Adjunct Professor of the Graduate School of Information Theory and Mathematical Sciences at the Federation University in Ballarat, Australia.

Francesco Carravetta graduated (Summa cum Laude) at University of Calabria - Arcavacata, Italy in Electronic Engineering in 1988. After graduating, in the period 1988 - 1990 he served as an engineer in industry, first at Selenia S.p.A, and then at Alcatel - FACE both in Rome, Italy. From 1990-1992, he had a fellowship at the Institute of Systems Analysis and Informatics, (IASI) Rome, Italy, of the Italian National Research Council (CNR). In 1992-1995 he was a PhD student at the Department of Systems and Computer Science of the University of Rome 'La Sapienza', obtaining his PhD in Systems Engineering in 1995. From 1995 to 2001 he worked as a contract Researcher, and since 2001 he has held the position of Researcher at the IASI-CNR. His main interests include Nonlinear Control, Optimal Control, Filtering and Identification, Stochastic Control, Signal Processing and Random Fields, with application to Bio-chemical reactions, Microfluidics, Robotic, Economy, Meteorology, Naval and Mechanical engineering. A list of selected publications can be found at the following link: http://www.iasi.cnr.it/new/people.php/id_subject/

Pasquale Palumbo was born in Pescara, Italy. He received the Laurea Degree cum laude in 1995 and the Ph.D. in 2000, both in Electrical Engineering from the University of LAquila. In 2000 he joined the Institute of System Analysis and Computer Science A. Ruberti of the Italian National Research Council (CNR) in Rome, where he is currently a Researcher. Since 2000 he has been a Visiting Professor at the University of LAquila, teaching courses in Probability, Statistics, Automatic Control, System Theory and Systems Biology. He is the author of more than 80 papers in Nonlinear Filtering and Control Systems, Mathematical modelling and control of the glucoseinsulin system, and Systems Biology.

Pierdomenico Pepe in 1990 received the Laurea in Electronic Engineering from the University of Ancona, and in 1996 received a Ph.D. in Electronic Engineering from the University of L'Aquila, Italy. He is currently Associate Professor of automatic control at the Department of Information Engineering, Computer Science, and Mathematics, at the University of LAquila, Italy. His main research interests include stability theory, nonlinear control, observers, optimal control, with special emphasis to systems with time-delays, and applications to biomedical, chemical, electrical and mechanical engineering. On these topics he has authored or co-authored about 120 technical papers for international journals and proceedings of international conferences. He has served as IPC member in several IFAC and IEEE international conferences, and is currently serving as Associate Editor of the IEEE Transactions on Automatic Control and of Systems & Control Letters. A full CV and list of publications can be found at his personal home page, at the link <http://www.diel.univaq.it/people/pepe/>

It is our great pleasure to congratulate all of the authors.

*Editorial Board
Prague, February 27, 2013*