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Marking the 60th Anniversary of Kybernetika

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MARKING THE 60TH ANNIVERSARY OF KYBERNETIKA

The journal *Kybernetika* was founded in 1964 by the Professional Group of Cybernetics initiative at the Czechoslovak Academy of Sciences to promote the development of the emerging field of cybernetics. The founding Editor-in-Chief was Jaroslav Kožešník, with Albert Perez as the deputy Editor-in-Chief. The first issue appeared in January 1965. The Publishing House of the Czechoslovak Academy of Sciences published the journal through the Institute of Information Theory and Automation.

In his famous book, Norbert Wiener defined cybernetics as the science of communication and control in living organisms and machines. There are other definitions, but this book clearly articulated the marriage of communication and control for a generation of scientists and engineers. Cybernetics is characterized by seeing feedback as the underlying principle of human/machine interaction in regulatory systems and recognizing the fundamental importance of information transmission, processing, and preservation during such interaction.

Since its conception, cybernetics has had a significant intellectual impact on various disciplines. Many of its initial applications focused on engineering and biology and the parallels between the two. As cybernetics has developed, its scope has broadened to become a transdisciplinary approach to exploring complex systems, such as mechanical, physical, computer, economic, biological, physiological, cognitive, and social.

As mentioned above, the first Editor-in-Chief of *Kybernetika* was Jaroslav Kožešník, serving from January 1965 to June 1985. The Editors-in-Chief who succeeded him preserved and enhanced the high-quality standards: Jiří Nedoma (July 1985–December 1985), Stanislav Kubík (January 1986–April 1990), Vladimír Kučera (May 1990–April 1998), Milan Mareš (May 1998–July 2011), Martin Janžura (September 2011–August 2016), and Radim Jiroušek (September 2016–August 2021). The current Editor-in-Chief is Sergej Čelikovský (since September 2021), with Lucie Fajfrová as the Co-Editor-in-Chief.

I also wish to recognize the importance of the *Kybernetika* Editorial Office hosted by the Institute of Information Theory and Automation. During its sixty years of existence, it was headed by the Executive Editors Libor Kubát (January 1965–January 1976), Miloslav Driml (February 1976–December 1979), Karel Sladký (January 1980–February 2007), Karel Sladký jointly with Lucie Fajfrová (March 2007–February 2010)

and, since March 2010, the current Co-Editor-in-Chief Lucie Fajfrová. I want to acknowledge the long-time dedicated service of Karel Sladký and the Layout Assistant Editor Iva Marešová.

Since its conception, many excellent research articles have been published in *Kybernetika*. Given the transdisciplinary character of cybernetics, it takes work to rate individual papers. Let me acknowledge the following two distinguished papers.

The most cited paper:

Ivan Kramosil and Jiří Michálek. Fuzzy metrics and statistical metric spaces.
Kybernetika 11 (1975), 5, 336–344.

This paper applies the concept of fuzziness to the classical notions of metric and metric spaces to define a fuzzy metric in a natural and intuitively justifiable way. The fuzzy metric is then shown to be, in a certain sense, equivalent to the statistical metric space. According to all recognized citation databases, this paper is the most cited contribution published in *Kybernetika* (Web of Science Core Collection 917 citations, Google Scholar 2702 citations).

The most influential paper:

Pavol Brunovský. A classification of linear controllable systems.
Kybernetika 6 (1970), 3, 173–188.

This paper discovers the standard form of linear controllable systems that is canonical with respect to the feedback group of transformations. The complete invariant is then shown to be a finite set of integers, presently known as the system's controllability indices. The canonical form has been named "Brunovsky canonical form" by the worldwide community, and it is part of all modern textbooks on linear and even nonlinear systems. In my opinion, naming a result after an author has a lasting influence on the generations of professors and students alike.

Kybernetika is a well-established, bi-monthly international journal published by Publishing House Academia of the Academy of Sciences of the Czech Republic jointly with the Institute of Information Theory and Automation. The journal is dedicated to the rapid publication of high-quality, peer-reviewed research articles in the broad field of cybernetics, including systems theory, control science, robotics, information science, signal processing, image processing, machine perception, artificial intelligence, statistical decision-making, applied probability theory, random processes, operations research, fuzzy and uncertainty theories, as well as in their original and creative applications. *Kybernetika* is a Gold Open-Access journal that serves authors and readers free of charge and provides easy access to publications.

Today, *Kybernetika* receives about 250 paper submissions yearly, each undergoing 2-3 review cycles. The Editorial Board is currently composed of 38 experts from 10 countries. The journal has been monitored by the Web of Science since 1975 and by Scopus since 2004. It is indexed, abstracted, or reviewed in Mathematical Reviews; Current Contents Engineering, Computing & Technology; and zbMATH Open databases. The latest impact factor of *Kybernetika* by Journal Citation Reports is 0.9.

The success of the journal reflects the success of the field. After periods of enthusiasm, early development, and suspicion, cybernetics has flourished and demonstrated its intellectual potential and practical utility. I wish *Kybernetika* a wide readership, the Editor-in-Chief and his team the joy of a job well done, and the readers of *Kybernetika* inspiration for their further work.

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