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Advances in Intelligent and Soft Computing

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Man-Machine Interactions

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To the memory of Professor Adam Mrózek

Preface

The International Conference on Man-Machine Interactions (ICMMI 2009) commemorates the life and work of Adam Mrózek (1948-1999). From 1970, he worked at the Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, and from 1992 at the Institute of Informatics, Silesian University of Technology, Gliwice, Poland, in 1998 taking the post of a Vice Director of the Institute for Research and the head of the Computer Systems Theory and Design Division. During his lifetime the scientific interests of A. Mrózek were highly diversified.

This ICMMI 2009 volume reflects a number of research streams that were either directly or indirectly influenced by Adam Mrózek's work on the development of computer systems and software that makes it possible to employ them in a variety of human activities ranging from logic studies and artificial intelligence[1], rule-based control of technological processes[2], image analysis[3], expert systems and decision support[4], to assistance in creative works.

In particular, this ICMMI volume points to a number of new advances in man-machine communication, interaction between visualization and modeling, rough granular computing in human-centric information processing and the discovery of affinities between perceptual granules. The topical subdivisions of this volume include human-computer interactions, decision support, rough

[1] Jankowski, A., Skowron, A.: Logic for artificial intelligence: A Rasiowa-Pawlak school perspective. In: Ehrenfeucht, A., Marek, V.W., Srebrny, M. (eds.) Andrzej Mostowski and Foundational Studies, pp. 92–105. IOS Press, Amsterdam (2008).

[2] Mrózek, A.: Rough sets in computer implementation of rule-based control of industrial processes. In: Słowiński, R. (ed.) Intelligent decision support–Handbook of applications and advances of the rough sets theory, pp. 19–32. Kluwer, Boston (1992); Mrózek, A.: A new method for discovering rules from examples in expert systems. International Journal of Man-Machine Studies 36, 127–143 (1992)

[3] Mrózek, A., Płonka, L.: Rough sets in image analysis. Foundations of Computing and Decision Sciences 18(3-4), 258–273 (1993).

[4] Mrózek, A., Skabek, K.: Rough rules in Prolog. In: Półkowski, L., Skowron, A. (eds.) RSCTC 1998. LNCS, vol. 1424, pp. 458–466. Springer, Heidelberg (1998).

fuzzy investigations, advances in classification methodology, pattern analysis and signal processing, computer vision and image analysis, advances in algorithmics, databases and data warehousing, and embedded system applications. These Proceedings present seventy-one research papers reflecting the work by 117 researchers from ten countries, namely Canada, Chech Republic, P.R. China, Egypt, India, Norway, Poland, Saudi Arabia, Thailand, and USA.

This volume has been made possible thanks to the laudable efforts of a great many organizations that have made this conference possible, namely, Institute of Informatics, Silesian University of Technology, Gliwice, Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, Gliwice, Institute of Computer Science, Polish Academy of Sciences, Warsaw, and Institute of Computer Science, University of Silesia, Katowice. The organization of the conference benefited also from contributions by Robert Budryk, Ewa Piętka, Henryk Rybiński, Michał Woźniak, and other generous persons.

Let us express our gratitude to James F. Peters who was the initiator of the whole idea and kindly accepted the invitation to serve as the Honorary Chair, and to deliver a keynote talk during the conference.

We also wish to express our thanks to Marek Kimmel, Andrzej Skowron and Ryszard Tadeusiewicz for accepting our invitation to be keynote speakers.

In addition, the editors and authors of this volume extend an expression of gratitude to Thomas Ditzinger, Dieter Merkle, Heather King and other staff at Springer for their support in making this volume possible. Furthermore, the editors extend their thanks to Janusz Kacprzyk and other members of the Programme Committee for helping in the compilation of this volume, and to Sebastian Deorowicz for extensive use of his typsetting skills.

The editors express their hopes that this volume and the ICMMI 2009 conference will commemorate Adam Mrózek not only by just reporting scientific and technological solutions which have already been achieved, but also by inspiring some new interdisciplinary efforts leading to further improvements and research on man-machine interactions, resulting in enhancing the quality of life for all of us.

Gliwice
September 2009

Krzysztof A. Cyran
Stanisław Kozielski
James F. Peters
Urszula Stańczyk
Alicja Wakulicz-Deja

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