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In Memory of Professor Zdzisław Pawlak

This volume of Fundamenta Informaticae is dedicated to the memory of Zdzisław Pawlak[1], a great scientist and a great human being.

A short perspective on the life and work of Zdzisław Pawlak is given at the beginning of this volume. During his lifetime, the research interests of Pawlak were rich and varied. His research ranged from his pioneering work on knowledge description systems and rough sets during the 1970s and 1980s to his work on the design of computers, information retrieval, modeling conflict analysis and negotiation, genetic grammars and molecular computing. One should also mention his active lifelong interest in painting, photography and poetry. During his lifetime, Pawlak nurtured worldwide interest in approximation, approximate reasoning and rough set theory and its applications. A compelling evidence of the scientific influence of Pawlak is the literature on rough sets that now includes over 4000 publications as well as the growth and maturity of the International Rough Set Society.

Many papers that appear in this volume reflect the profound influence of a number of research initiatives by Pawlak in a whole range of research areas. It can be also inferred from the papers included in this volume that research concerning the foundations and applications of rough sets remains a vivid and still growing research area worldwide. During the past 35 years since the introduction of knowledge description systems in the 1970s by Pawlak, the theory and applications of rough sets as well as the advent of approximation spaces to facilitate perception and observation concerning classes of objects has developed in a truly impressive way.

Most of the contributions to this volume are on invitational basis, but they have been refereed in the usual way. This work contains 28 papers that explore a number of research streams that are either directly or indirectly related to research initiatives by Zdzisław Pawlak. These research streams are represented by papers on arrow logic with arbitrary intersections (Philippe Balbiani, Dimiter Vakarelov), rough dialogue and implication lattices (Mohua Banerjee, Mihir Chakraborty), rough set approach to behavioral pattern identification (Jan Bazan, Stanisława Bazan-Socha, Andrzej Skowron, Jacek J. Pietrzyk), generating graphs by self-assembly (Francesco Bernardini, Robert Brijder, Grzegorz Rozenberg, Claudio Zandron), entropies of partitions and coverings with application to incomplete information (Daniela Bianucci, Gianpiero Cattaneo, Davide Cucci), rough sets and learning by unification (Wojciech Buszkowski), string languages generated by spiking neural P systems (Haiming Chen, Rudolf Freund, Mihai Ionescu, Gheorghe Păun, Mario J. Pérez-Jiménez), relative nondeterministic information logic (Stéphane Demri, Ewa Orlowska), a correspondence framework between three-valued logics and similarity-based approximate reasoning (Patrick Doherty, Andrzej Szałas), a possibility theoretic view

[1] Prof. Pawlak passed away on 7 April 2006.

of formal concept analysis (Didier Dubois, Florence Dupin de Saint-Cyr, Henri Prade), complexity issues in multiagent logics (Marcin Dziubiński, Rineke Verbrugge, Barbara Dunin-Kęplicz), multimodal logic for disagreement and exhaustiveness (Ivo Düntsch, Beata Konikowska), reaction systems (Andrzej Ehrenfeucht, Grzegorz Rozenberg), cooperative world modeling in dynamic multi-robot environments (Daniel Göhring, Hans-Dieter Burkhard), pragmatic mereology (Ryszard Janicki, Dai Tri Man Lê), the role of Pawlak information systems in terms of Galois connections and functional dependencies (Jouni Järvinen), Pawlak as a precursor of DNA computing and of picture grammars (Solomon Marcus), compositional systems over reducible networks (Antoni Mazurkiewicz), construction of partial reducts and irreducible partial decision rules (Mikhalil Moshkov, Marcin Pilszczuk, and Beata Zielosko), retracts of algebras (Miroslav Novotný), non-symbolic and symbolic processing (Setsuo Ohsuga), near sets (James Peters), concept approximation in mathematics and computer science (Lech Polkowski), conflict dynamics based on rough sets (Sheela Ramanna, James Peters, Andrzej Skowron), subword balance in binary words, languages and sequences (Arto Salomaa), histogram thresholding using beam theory and ambiguity measures (Debashis Se, Sankar K. Pal), generating all binary trees (Władyslaw Skarbek), and on behaviour algebras (Józef Winkowski).

Researchers from 18 countries contributed to this volume (Austria, Bulgaria, Canada, P.R. China, Czech Republic, Finland, France, Germany, India, Italy, Japan, Poland, Romania, Russia, Spain, Sweden, The Netherlands, and USA).

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