

## Preface

Volume XIX of the *Transactions on Rough Sets* was inspired by the 2012 Workshop on Rough Set Applications (RSA 2012) organized within the 7th International Symposium on Advances in Artificial Intelligence and Applications (AAIA 2012), held as a part of the 2012 Federated Conference on Computer Science and Information Systems (FedCSIS 2012) in Wrocław, Poland, during September 9–12, 2012. The volume consists of two parts. The first part gathers seven regular contributions, which are extended and re-reviewed versions of the papers originally presented at the aforementioned symposium. The second part contains three contributions in the category of short surveys and monographs. We believe that this way we achieved a well-balanced content reflecting the current trends and advances in both the foundations and practical applications of rough sets.

The paper co-authored by Tuan-Fang Fan, Churn-Jung Liao, and Duen-Ren Liu introduces a new uniform theoretical framework for rough approximations based on generalized quantifiers. The paper co-authored by Ivo Düntsch and Günther Gediga proposes a parameter-free and monotonic alternative to the parametric variable precision model developed within the theory of rough sets. The paper co-authored by Mohammad Azad, Igor Chikalov, Mikhail Moshkov, and Beata Zielosko compares three approaches to define and search for superreducts in inconsistent decision tables. The paper co-authored by Long Giang Nguyen and Hung Son Nguyen outlines an alternative method of eliminating the attributes that do not occur in any reducts of a given decision table. The paper by Beata Zielosko utilizes the tools of dynamic programming to extract inexact decision rules optimized with respect to their length, coverage, and confidence. The paper by Krzysztof Pancerz discusses how to incorporate information about semantic relations between decision classes to better model the accuracy of rough approximations. The paper co-authored by Jan G. Bazan, Sylwia Buregwa-Czuma, Przemysław W. Pardel, Stanisława Bazan-Socha, Barbara Sokołowska, and Sylwia Dziedzina describes the rough-set-based classification method for predicting coronary stenosis demanding revascularization for patients diagnosed with stable coronary heart disease. The survey co-authored by Pulak Samanta and Mihir K. Chakraborty summarizes correspondences between different extensions of the theory of rough sets and modal logic systems. The monograph co-authored by Gloria Virginia and Hung Son Nguyen illustrates how to use the tolerance rough set model to conduct semantic text retrieval for the Indonesian language. The monograph authored by Pradip Kundu shows how to formulate and solve transportation problems in uncertain environments modeled by means of fuzzy sets and rough sets.

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