Preface

The combination of different intelligent methods is a very active research area in artificial intelligence (AI). The aim is to create integrated or hybrid methods that benefit from each of their components. It is generally believed that complex problems can be easier solved with such integrated or hybrid methods.

Some of the existing efforts combine what are called soft computing methods (fuzzy logic, neural networks, and genetic algorithms) either among themselves or with more traditional AI methods such as logic and rules. Another stream of efforts integrates case-based reasoning or machine learning with soft computing or traditional AI methods. Yet another integrates agent-based approaches with logic and also non-symbolic approaches. Some of the combinations have been quite important and more extensively used, such as neuro-symbolic methods, neuro-fuzzy methods, and methods combining rule-based and case-based reasoning. However, there are other combinations that are still under investigation, such as those related to the Semantic Web. In some cases, combinations are based on first principles, whereas in other cases, they are created in the context of specific applications.

Important topics of the above area are (but not limited to) as follows:

- Case-Based Reasoning Integrations
- Genetic Algorithms Integrations
- Combinations for the Semantic Web
- Combinations and Web Intelligence
- Combinations and Web Mining
- Fuzzy-Evolutionary Systems
- Hybrid Deterministic and Stochastic Optimization Methods
- Hybrid Knowledge Representation Approaches/Systems
- Hybrid and Distributed Ontologies
- Information Fusion Techniques for Hybrid Intelligent Systems
- Integrations of Neural Networks
- Intelligent Agents Integrations
- Machine Learning Combinations
- Neuro-Fuzzy Approaches/Systems

- Applications of Combinations of Intelligent Methods to the following:

  – Biology and Bioinformatics
  – Education and Distance Learning
  – Medicine and Health Care

This volume includes extended and revised versions of some of the papers presented in the 5th International Workshop on Combinations of Intelligent Methods and Applications (CIMA 2015) and also papers submitted especially for this volume after a CFP. CIMA 2015 was held in conjunction with the 27th IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2015).

We would like to express our appreciation to all authors of submitted papers as well as to the members of CIMA 2015 program committee for their excellent review work.

We hope that these post-proceedings will be useful to both researchers and developers.

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