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Preface

These are the proceedings of the Ninth European Conference on Symbolic and Qualitative Approaches to Reasoning with Uncertainty, ECSQARU 2007, held in Hammamet (Tunisia), October 31, November 1–2 2007. The biannual ECSQARU conferences are a major forum for advances in the theory and practice of reasoning under uncertainty. The first ECSQARU conference was held in Marseille (1991), and since then it has been held in Granada (1993), Fribourg (1995), Bonn (1997), London (1999), Toulouse (2001), Aalborg (2003) and Barcelona (2005).

The papers gathered in this volume were selected out of 120 submissions from 25 countries, after a rigorous reviewing process by three Program Committee members and a restricted Program Committee. In addition to the regular presentations, the technical program of ECSQARU 2007 also included invited lectures by three outstanding researches: Thierry Denoeux (Pattern Recognition and Information Fusion Using Belief Functions: Some Recent Developments), Salem Benferhat (Qualitative Models for Reasoning Under Uncertainty: From Non-monotonicity and Causality to Applications) and Anthony Hunter (Elements of Argumentation).

A special dedication to the memory of Philippe Smets, who collaborated with our team for several years and who gave full support to the organization of ECSQARU in Tunisia. In his memory we have organized a permanent special session grouping an overview of his main contributions in the artificial intelligence field.

Finally, I would like to thank the members of the Program Committee and all the additional referees for their valuable work. I also want to express my acknowledgment to all of my colleagues of the Organizing Committee for their support in making this conference successful.

July 2007 Khaled Mellouli

Organization

ECSQARU 2007 was organized by Laboratoire de Recherche Operationnelle, de Decision et de Controle de Processus (LARODEC) and Tunisian Management Science Society (TMSS) (Institut Superieur de Gestion Tunis, Tunisia).

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Pattern Recognition and Information Fusion Using Belief Functions: Some Recent Developments

Thierry Denœux

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The Transferable Belief Model (TBM) is a general framework for reasoning with uncertainty using belief functions [8]. Of particular interest is the General Bayesian Theorem (GBT), an extension of Bayes's theorem in which probability measures are replaced by belief functions, and no prior knowledge is assumed [7,6].

Until recently, applications of the GBT have been fairly limited, mainly because of lack of methods for constructing belief functions from observation data. The availability of such methods [4,2,1] as well as new combination rules for merging partially overlapping items of evidence [5] now extend the applicability of the TBM to a wider class of statistical pattern recognition and information fusion tasks. These recent developments will be reviewed, and applications to various problems such as novelty detection [3] and partially supervised learning using mixture models will be discussed.

This talk is mostly self-contained. Relevant material (papers, slides) can be found at `http://www.hds.utc.fr/~tdenoeux`.

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