Preface

Managing uncertainty and inconsistency has been extensively explored in the field of artificial intelligence over a number of years. Now, with the advent of massive amounts of data and knowledge from distributed, heterogeneous, and potentially conflicting sources, there is interest in developing and applying formalisms for uncertainty and inconsistency in systems that need to better manage these data and knowledge. To meet the challenge of representing and manipulating large amounts of uncertain information, researchers are drawing from a wide range of different methodologies and uncertainty models. While Bayesian methods remain the default choice in most disciplines, sometimes there is a need for more cautious approaches, relying for instance on imprecise probabilities, ordinal uncertainty representations, or even purely qualitative models.

The International Conference on Scalable Uncertainty (SUM) aims to provide a forum for researchers who are working on uncertainty management, in different communities and with different uncertainty models, to meet and exchange ideas. Previous SUM conferences have been held in Washington DC (2007), Naples (2008), Washington DC (2009), Toulouse (2010), Dayton (2011), Marburg (2012), Washington DC (2013), Oxford (2014), Québec City (2015), and Nice (2016).

This volume contains contributions from the 11th SUM conference, which was held in Granada, Spain, during October 4–6, 2017. The conference attracted 35 submissions, of which 30 were accepted for publication and presentation at the conference, based on three rigorous reviews by the members of the Program Committee or external reviewers.

In addition, the conference greatly benefited from invited lectures by three world-leading researchers: Alberto Bugarín Diz, Fabio Gagliardi Cozman, and Martin Theobald. To further embrace the aim of facilitating interdisciplinary collaboration and cross-fertilization of ideas, and building on the tradition of invited speakers at SUM, the conference featured eight tutorials, covering a broad set of topics related to uncertainty management. We thank Olivier Cailloux, Inés Couso, Francisco Herrera, Rafael Peñaloza Nyssen, Régis Sabbadin, Antonio Salmerón, Laurent Vercouter, and Nic Wilson for preparing and presenting these tutorials. A companion paper for several of them can be found in this volume.

We would like to thank all the authors and invited speakers for their valuable contributions, and the members of the Program Committee and external reviewers for their detailed and critical assessment of the submissions. We are also very grateful to the University of Granada for hosting the conference.

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