Preface

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Biographical notes: Tho Manh Nguyen received his PhD in Information Systems from the Vienna University of Technology, Austria and worked as a Senior Researcher at the Institute of Software Technology and Interactive Systems. He has been awarded the Microsoft Student Travel Award, IBM Europe Student Event Recognition and the Outstanding Students Award. He is a PC member, PC chair and organiser of several international conferences and workshops and has a variety of publications in international conferences and journals in the fields of data warehousing and knowledge discovery. His research areas of interest include data warehousing, data mining and knowledge discovery, business intelligence systems, grid-based knowledge discovery, service-oriented computing, ontology and semantic management.

Starting from the beginning of the *International Conference on Availability, Reliability and Security* (ARES) conference in 2006, the workshop on the 'Dependability Aspects on Data Warehousing and Mining Applications (DAWAM) reaches its third year in 2008. The previous DAWAM workshops were held at the Vienna University of Technology, Austria, on 20–22 April 2006 (DAWAM, 2006) and 10–13 April 2007 (DAWAM, 2007). This year, DAWAM 2008 was held at the Polytechnic University of Catalonia, Barcelona, Spain, on 4–7 March 2008. The goals of this workshop were to bring together users, engineers and researchers (from the industry and academy) alike to present their recent work, discuss and identify problems, synergise the different views of techniques and policies and brainstorm future research directions on the various dependability aspects of data warehousing and data mining applications. The workshop has attracted several researchers and practitioners with interests in the areas of reliability, availability, privacy and security, databases, data warehousing, data mining and statistics to discuss and share their experience and research results. We received 22 submissions from 17 countries and the Programme Committee finally selected eight papers, making the acceptance rate of 36.36%.

Amongst the eight accepted papers, the authors of the five best papers were invited to extend their papers and resubmit them for this special issue. These extended papers had two more rounds of reviews, where reviewers made strong revisions and paid special attention to the new material. In this special issue of DAWAM 2008, the following papers were selected.

The first paper 'Privacy-enhancing methods for e-health applications: how to prevent statistical analyses and attacks' written by Stingl and Slamanig, presents the method of protecting electronic health records and enhancing privacy against variable attacks. The authors propose a concept that includes the pseudonymisation of medical data, multiple identities, the obfuscation of metadata and anonymity methods to prevent attacks such as the trivial disclosure attack, the anonymity set attack and the statistical analysis of metadata to make statistical analysis difficult. Furthermore, all privacy-enhancing methods do not rely on application layer mechanisms which, in general, can easily be bypassed by insiders and are protected using cryptographic primitives. Hence, the proposed techniques can be used to improve the user's privacy and consequently enhance the user's trust in e-health applications.

The second paper, 'How to implement multidimensional security into OLAP tools' by Blanco *et al.*, proposes the Model-Driven Architecture (MDA) for modelling and developing secure Data Warehouses (DWs) and Online Analytical Processing Applications (OLAP) tools based on the enhancement of Unified Modelling Language (UML)-based multidimensional modelling. The security aspects can be defined according to the Access Control and Audit (ACA) model. Several security measures have been introduced, such as security levels, user categories, user roles and security constraints. As proof of the concept, the authors have presented how to implement these security measures defined at the upper abstraction levels using SQL Server Analysis Services (SSAS).

Ravindran *et al.* present in their paper, 'Adaptive voting algorithms for the reliable dissemination of data in fault-prone distributed environments', the use of voting among replica devices to decide on the correct data delivery to the end user in voting applications. Data collection in a distributed embedded system requires dealing with failures such as data corruption by malicious devices and arbitrary message delays/loss and errors in the network. The replication of data collection devices and the use of secure multicast channels purport to deal with such failures. Using voting protocols to achieve good performance while meeting the reliability requirements of data delivery in a high assurance setting is the main target of the paper. A variety of metrics to evaluate the quality of voting protocols such as data transfer efficiency, the time to complete data deliver and the data miss rate are presented in the paper.

The fourth paper, 'An evaluation of business solutions in manufacturing enterprises' by Asnar *et al.*, introduces the Tropos Goal-Risk (GR) framework for the analysis and evaluation of business solutions within manufacturing Small Medium Enterprises (SMEs). This aims to evaluate the expressiveness of the modelling language and validate the formal framework against an industrial case study (*i.e.*, intramanufacturing integration model) defined by our industrial partner Think3. The three conceptual layers of the framework (asset layer, event layer and treatment layer) are described in the paper, followed by a comprehensive case study on manufacturing enterprises.

The last paper 'On the requirements of new software development' by De Florio and Blondia, addresses the inadequacy of current software engineering practices in matching the complexity and requirements of the services that constitute the technological foundation of our societies. The authors argue that the way software is built today is not up to the task; thus, they need some structuring techniques that make the software agile, resilient and adaptive while the software systems are very vulnerable to changes. A solution, the so-called 'new software development', is proposed as a software equivalent of the well-known concept of 'new product development'.

We would like to express our gratitude to all of the Programme Committee members and the external reviewers who reviewed the papers very profoundly and in a timely manner. We would also like to thank to all of the authors who submitted their papers to DAWAM 2008, as their high-quality contributions formed the basis of this year's workshop's excellent technical programme.