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## Preface

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**Biographical notes:** James J. Park received his PhD from the Graduate School of Information Security, Korea University, Korea. He is now a Professor at the Department of Computer Science and Engineering, SeoulTech, Korea. He has published about 100 research papers in international journals and conferences. He has been serving as the Chair and Program Committee for many international conferences and workshops, and the Editor-in-Chief and editorial board member of international journals. He is the President of the Future Technology Research Association International (FTRA) and Korea Information Technology Convergence Society (KITCS). His research interests include ubiquitous computing and security, context awareness, multimedia services, etc.

Hai Jin is a Cheung Kung Scholars Chair Professor of Computer Science and Engineering at Huazhong University of Science and Technology (HUST) in China. He is now the Dean of the School of Computer Science and Technology at HUST. He received his PhD in Computer Engineering from HUST in 1994. In 1996, he was awarded a German Academic Exchange Service fellowship to visit the Technical University of Chemnitz in Germany. He worked at The University of Hong Kong between 1998 and 2000, and as a Visiting Scholar at the University of Southern California between 1999 and 2000. He was awarded Excellent Youth Award from the National Science Foundation of China in 2001. He is the Chief Scientist of ChinaGrid, the largest grid computing project in China, and the Chief Scientist of National 973 Basic Research Program Project of Virtualization Technology of Computing System.

Ching-Hsien Hsu is a Professor at the Department of Computer Science and Information Engineering at Chung Hua University, Taiwan. His research includes high performance computing, cloud computing, parallel and distributed systems, ubiquitous/pervasive computing and intelligence. He has published 180 papers in refereed journals, conference proceedings and book chapters in these areas. He was awarded four times annual outstanding research awards and a distinguished award for excellence in research from Chung Hua University. He has been serving as an Executive Committee of Taiwan Association of Cloud Computing (TACC) and IEEE Technical Committee of Scalable Computing (TCSC) from 2008–2011. He is a member of Phi Tau Phi Scholastic honor society; IEEE senior member; and Standing Director of Taiwan Association of Cloud Computing (TACC).

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Cloud computing is a concept of integration and virtualisation of heterogeneous IT resources such as personal computers. It is an implementation of distributed computing which comprises sharing and managing usage of resources. Cloud computing gives users access to

massive computing and storage resources such as integration servers without their having to know where those resources are or how they're configured. However, due to easy access to the integration servers in the cloud computing environment, some problems such as

unauthorised disclosure or modification of information stored in the integration servers, might be encountered.

Cloud is a common metaphor for an internet accessible infrastructure, hiding most of the implementation and deployment details in the field of ICT. Cloud computing is becoming a scalable services delivery and consumption platform. The backbone behind cloud computing includes service-oriented architecture (SOA) and virtualisation of hardware and software. The goal of cloud computing is to share resources among the cloud service consumers, cloud partners and cloud vendors in the cloud value chain. Cloud computing has been envisaged to be one of the main stream powering technologies of future ICT and next generation network. This special issue is focused on interoperability issues of grid and computing domain. It mainly focuses on designing interoperable components, experiences and lessons learnt from developing interoperable services in the cloud and grid environment. The special issue aims at providing a forum to bring together researchers for sharing and exchanging cloud and grid computing related research, technologies, experience, and lessons for building clouds of interoperability and coordination capabilities and services. We believe this special issue will be a place to help the research community to define their novel ideas in the current state of grid-cloud interoperability issues. In addition, the special issue will help to define the future goals and services that cloud needs to support various intensive commercial and enterprise applications.

We received 12 manuscripts. Each manuscript was blindly reviewed by at least three reviewers consisting of guest editors and external reviewers. After the review process, six manuscripts were finally selected for this special issue.

The first paper in this special issue is on ‘Gaining the profits of cloud computing in a public authority environment’ by Klaus Zaerens. As a solution to problems with the adoption of cloud computing in public authority environments, this paper proposes a new service model called knowledge management as a service, which also improves usability.

The second paper in this special issue is on ‘Data contracts for cloud-based data marketplaces’ by Hong-Linh Truong, Marco Comerio, Flavio De Paoli, G.R. Gangadharan and Schahram Dustdar. This paper supports the view that data concerns should be explicitly modelled and specified in data contracts to support concern-aware data selection and utilisation. The paper performs a detailed analysis of current techniques for data

contracts in the cloud. The paper also proposes several techniques for evaluating data contracts that can be integrated into data service selection and composition frameworks.

The third paper in this special issue is on ‘An architecture for enterprise PC cloud’ by Balwinder Sodhi and T.V. Prabhakar. This paper describes an architecture for an IaaS cloud where the cluster nodes’ control is either fully autonomous (e.g., a volunteered machine) and/or semi-autonomous (e.g., PCs allotted to employees in an enterprise).

The fourth paper in this special issue is on ‘Self-adaptive QoS-aware resource allocation and reservation management in virtualised environments’ by Xiaoying Wang, Zhihui Du, Yuanyuan Xue, Lihua Fan and Rui Wang. In this paper, the architecture of virtualisation-based resource reservation is described and the formulation of an optimisation problem concerning the reservation acceptance decision is presented. To solve this problem, a self-adaptive QoS-aware reservation management approach is proposed, which calculates the reservation acceptance gain to make the final decision.

The fifth paper in this special issue is on ‘Task scheduling in budget-constrained cloud computing systems to maximise throughput’ by Weiming Shi and Bo Hong. This paper shows that the specific budget-constrained steady-state throughput maximisation problem can be formulated and solved as a linear programming (LP) problem.

The sixth paper in this special issue is on ‘A DevOps framework to shorten delivery time for cloud applications’ by Shigeru Hosono. This paper proposes DevOps platforms for cloud applications, integrating both the development and operation environment seamlessly. It consists of the client-side integrated development environment (IDE), and the server-side service portfolio and cloud controller, which can simulate execution of large-scale applications in developers’ PCs.

We wish to thank all the authors for their great work and for considering the Inderscience’s *International Journal of Computational Science and Engineering (IJCSSE)* for submitting their papers. Special thanks go to the anonymous reviewers for their help and dedication in reviewing the papers and providing useful comments to the authors for their papers improvement. Special thanks to the Editor in Chief – Professor Kuan-Ching Li for hosting this special issue in the prestigious *IJCSSE*, and for their excellent supports. We hope that this special issue will represent a timely and significant reference for future researches.