Preface

The 7th International Conference on Information Technology (CIT 2004) was held in Hyderabad, India, during December 20–23, 2004. The CIT 2004 was a forum where researchers from various areas of information technology and its applications could stimulate and exchange ideas on technological advancements.

CIT, organized by the Orissa Information Technology Society (OITS), has emerged as one of the major international conferences in India and is fast becoming the premier forum for the presentation of the latest research and development in the critical area of information technology. The last six conferences attracted reputed researchers from around the world, and CIT 2004 took this trend forward.

This conference focused on the latest research findings on all topics in the area of information technology. Although the natural focus was on computer science issues, research results contributed from management, business and other disciplines formed an integral part.

We received more than 200 papers from over 27 countries in the areas of computational intelligence, neural networks, mobile and ad hoc networks, security, databases, software engineering, signal and image processing, and Internet and WWW-based computing. The programme committee, consisting of eminent researchers, academicians and practitioners, finally selected 43 full papers on the basis of reviewer grades.

This proceedings contains the research papers selected for presentation at the conference and this is the first time that the proceedings have been published in the Lecture Notes in Computer Science (LNCS) series. The poster papers are being printed as a separate conference proceedings.

We would like to thank the CIT 2004 General Chairs Arun K. Pujari and Chitta Baral, and the organizing committee of the 7th International Conference on Information Technology for their support and co-operation. We also thank the invited speakers.

Thanks are also due to the reviewers who very carefully and timely reviewed the papers, the authors who submitted their papers and all the participants of CIT 2004. The process was very systematic and fast, courtesy of Microsoft's Conference Toolkit; our gratitude to them. We also express our sincere thanks to Alfred Hofmann and the staff of Springer for their professional support.

December 2004

Gautam Das and Ved P. Gulati

Organizing Committee

Arun K. Pujari University of Hyderabad, India Chakravarthy Bhagvathi University of Hyderabad, India Chitta Baral Arizona State University, USA

Gautam Das University of Texas at Arlington, USA
Ved P. Gulati Institute for Development and Research

in Banking Technology, Hyderabad, India

Kamalakar Karlapalem International Institute of Information Technology,

Hyderabad, India

P. Radha Krishna Institute for Development and Research

in Banking Technology, Hyderabad, India

Program Committee

Ashutosh Saxena Institute for Development and Research

in Banking Technology, Hyderabad, India

Akshai Aggarwal University of Windsor, Ontario, Canada

Ambuj Mohanty Indian Institute of Management, Calcutta, India Amit Rudra Curtin University of Technology, Perth, Australia

Anup Kumar Louisville University, USA

Ankur Teredesai Rochester Institute Of Technology, Rochester,

New York, USA

Arobindo Gupta Indian Institute of Technology, Kharagpur, India

Atul Negi University of Hyderabad, India
Basabi Chakraborty Iwate Prefectural Uni, Iwate, Japan

B.S. Panda Indian Institute of Technology, Delhi, India

Bhed Bahadur Bista Iwate Prefectural Univ, Iwate, Japan
Bimal Kumar Roy Indian Statistical Institute, Kolkata, India
Binoy K. Das Integrated Test Range, Chandipur, India

Chitta R. Das Penn State University, USA

D. Misra New Jersey Institute of Technology, USA

Debasish Chakraborty Iwate Prefectural Univ, Japan Dipankar Dasgupta University of Memphis, USA

Ganapati Panda National Institute of Technology, Rourkela, India

Giri Kumar Tayi University at Albany, USA

Goutam Chakraborty Iwate Prefectural University, Japan

Govinda Rajulu International Institute of Information Technology,

Hyderabad, India

Jay N. Bhuyan University of Tuskegee, Alabama, USA

Jayaram Pradhan Berhampur University, India Joydeep Ghosh University of Texas, Austin, USA

Kamalakar Karlapalem International Institute of Information Technology,

Hyderabad, India

King-Ip Lin University of Memphis, USA

VIII Organization

Krishna Kummamuru IBM, Delhi, India Laurent Mignet IBM, Delhi, India

P. Radha Krishna Institute for Development and Research in Banking Technology, Hyderabad, India

P. Tripathy Airvana, USA

Palash Sarkar Indian Statistical Institute, Kolkata, India Parthasarathi Roop The University of Auckland, New Zealand Pradeep Kumar Ray University. of New South Wales, Sydney

Prosenjit Gupta International Institute of Information Technology,

Hyderabad, India

P.P. Chakraborty Indian Institute of Technology, Kharagpur, India

Ravishankar Iyer Intel Corporation, USA

S. Chaudhury Indian Institute of Technology, Delhi, India

S. Mohanty
Utkal University, India
S. Padhy
Utkal University, India
Saad Biaz
Auburn University, Al
University of Waterloo, USA

Sajal Das University of Texas, USA
Sanjay Madria University of Missouri-Rolla, USA

Siddharth Choudhuri Univ. California at Irvine

Sridhar Iyer Indian Institute of Technology, Mumbai, India Srikanta Patnaik University College of Engineering, Burla, India Sudeshna Sarkar Indian Institute of Technology, Kharagpur, India Sunita Sarawagi Indian Institute of Technology, Mumbai, India

Vladik Kreinovich University of Texas at El Paso, USA
V.N. Sastry Institute for Development and Research
in Banking Technology, Hyderabad, India