

# Foreword

It gives us great pleasure to introduce this collection of papers to be presented at the 2012 International Conference on Grid Computing and Applications (GCA'12), July 16 through 19, 2012, at Monte Carlo Resort, Las Vegas, USA.

**The Academic Co-Sponsors, Corporate Co-Sponsors, Co-Sponsors At-Large and Organizers of this year's conference include** (separated by semicolons):

Bioinformatics & Computational Biology Program, George Mason University, Virginia, USA; Biomedical Cybernetics Laboratory, HST of Harvard University and MIT, USA; Minnesota Supercomputing Institute, University of Minnesota, USA; Center for Cyber Defense, NCAT, USA; Argonne's Leadership Computing Facility of Argonne National Laboratory, Illinois, USA; The Center for Advanced Studies in Identity Sciences (CASIS: NC A&T, Carnegie Mellon, Clemson, UNC Wilmington), USA; Knowledge Management & Intelligent System Center (KMIS) of University of Siegen, Germany; Intelligent Cyberspace Engineering Lab., ICEL, Texas A&M University, Commerce, Texas, USA; UMIT, Institute of Bioinformatics and Translational Research, Austria; Hawkeye Radiology Informatics, Department of Radiology, College of Medicine, University of Iowa, Iowa, USA; The International Council on Medical and Care Compunetics, Europe; US Chapter of World Academy of Science (<http://www.world-academy-of-science.org/>); Supercomputer Software Department (SSD), Institute of Computational Mathematics & Mathematical Geophysics, Russian Academy of Sciences, Russia; International Society of Intelligent Biological Medicine, USA; NDSU-CIIT Green Computing and Communications Laboratory, USA; Medical Image HPC & Informatics Lab (MiHi Lab), University of Iowa, Iowa, USA; High Performance Computing for Nanotechnology, USA; Manx Telecom, Europe; Computer Science Research, Education, and Applications Press; World Academy of Biomedical Sciences and Technologies; HoIP Telecom, Europe; Super Micro Computer, Inc., San Jose, California, USA; Intel Corporation; Hodges Health, UK; and OMG™. In addition, a number of university faculty members and their staff (names appear below and also on the cover of the proceedings), several publishers of computer science and computer engineering books and journals, chapters and/or task forces of computer science associations/organizations from 6 countries, and developers of high-performance machines and systems provided significant help in organizing the conference as well as providing some resources.

An important mission of WORLDCOMP (a federated congress to which this conference is affiliated with) includes "Providing a unique platform for a diverse community of constituents composed of scholars, researchers, developers, educators, and practitioners. The Congress makes concerted effort to reach out to participants affiliated with diverse entities (such as: universities, institutions, corporations, government agencies, and research centers/labs) from all over the world. The congress also attempts to connect participants from institutions that have **teaching** as their main mission with those who are affiliated with institutions that have **research** as their main mission. The congress uses a quota system to achieve its institution and geography diversity objectives."

The program committee would like to thank all those who submitted papers for consideration. About 75% of the submissions were from outside the United States. Each paper was peer-reviewed by two experts in the field for originality, significance, clarity, impact, and soundness. In cases of contradictory recommendations, a member of the conference program committee was charged to make the final decision; often, this involved seeking help from additional referees by using a double-blinded review process. In addition, papers whose authors included a member of the conference program committee were evaluated using the double-blinded review process. The only exception to the above evaluation process was for papers that were submitted directly to chairs/organizers of approved sessions/workshops; in these cases, the chairs/organizers were responsible for the evaluation of such submissions. The overall paper acceptance rate for regular papers was 26%; 32% of the remaining papers were accepted as poster papers (at the time of this writing, we had not yet received the acceptance rate for a few individual tracks.)

We are very grateful to the many colleagues who helped in organizing the conference. In particular, we would like to thank the members of the GCA'12 Program Committee who we hope will offer their help

again in organizing the next year's conference (GCA'13). The GCA'12 Program Committee members were:

- *Prof. Naji Masned Irshyd AlQbailat, Assistant Dean for Planning, Developing and Quality, Princess Alia University College, Al-Balqa' Applied University, Shmeisani, Amman, Jordan*
- *Prof. Daniel Andresen, Kansas State University, Department of Computing and Information Sciences, Manhattan, Kansas, USA*
- *Prof. Hamid R. Arabnia (WC General Chair & Coordinator), Elected Fellow, ISIBM; Editor-in-Chief, The Journal of Supercomputing (Springer); Member, Advisory Board, IEEE TC on Scalable Computing; University of Georgia, Georgia, USA*
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- *Dr. Waqas Haider Khan Bangyal, Iqra University Islamabad, Pakistan*
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- *Prof. Juan-Vicente Capella-Hernandez, Universitat Politecnica de Valencia, Valencia, Spain; Executive Manager, Wireless Sensor Networks Valencia, Spain*
- *Prof. Victor Clincy, Computer Science Department, College of Science and Mathematics, Kennesaw State University, Kennesaw, Georgia, USA*
- *Dr. Bilal Gonen, University of Alaska, Anchorage, Alaska, USA*
- *Prof. George A. Gravvanis (GCA Vice-Chair), Democritus University of Thrace, Greece*
- *Dr. Pankaj Gupta, Microsoft Corporation, Redmond, Washington, USA*
- *Dr. Shaikh Abdul Hannan, Department of Computer Science, Vivekanand College, Aurangabad, India*
- *Dr. Seyyed Mohsen Hashemi, Dean of the Software Engineering and Artificial Intelligence Department, IAU University, Tehran, Iran*
- *Prof. Houcine Hassan, Universitat Politecnica de Valencia, Spain*
- *Dr. Shahram Javadi, Electrical Engineering Department, Azad University, Central Tehran Branch, Tehran, Iran; Director in Chief, International Journal of Smart Electrical Engineering*
- *Prof. D. V. Kodavade, Head, Computer Science & Engineering Department, D.K.T.E Society's Textile & Engineering Institute, Maharashtra State, India*
- *Dr. Praveen Koduru, Electrical & Computer Engineering, Kansas State University, USA*
- *Dr. B. V. Durga Kumar, Taylors University, Malaysia*
- *Dr. A. V. Senthil Kumar, Director, Department of MCA, Hindusthan College of Arts and Science, Hindusthan Gardens, India*
- *Prof. Kun Chang Lee (WC Steering Committee), Professor of MIS and WCU Professor of Creativity Science, Business School and Department of Interaction Science, Sungkyunkwan University, Seoul, South Korea*
- *Prof., Dr., Dr.h. Victor Malyskin (WC Steering Committee), Head, Supercomputer Software Department (SSD), Institute of Computational Mathematics and Mathematical Geophysics, Russian Academy of Sciences, Russia*
- *Prof. Andy Marsh (WC Steering Committee), Director HoIP; Director HoIP Telecom, UK; Secretary-General WABT; Vice-president ICET; Visiting Professor University of Westminster, UK*
- *Farhad Mehran, Saman Sanat Jahan Gostar Co., Tehran, Iran*
- *Dr. Sara Moein, Editorial board, International Journal of Science and Technology, Faculty of Engineering, MultiMedia University, Malaysia*
- *Dr. Ali Mostafaeipour, Industrial Engineering Department, Yazd University, Yazd, Iran*
- *Dr. Mohammad Hossein Nadimi-Shahraki, Head, Research Department, Artificial Intelligence, Faculty of Computer Engineering, Najafabad branch, Islamic Azad University, Iran*
- *Prof. James J. (Jong Hyuk) Park (WC Steering Committee), Department of Computer Science and Engineering, Seoul National University of Science and Technology (SeoulTech), Korea; President, KITCS; President, FTRA; Editor-in-Chiefs: HCIS, JoC and IJITCC Journals*
- *Prof. Yongyuth Permpoontanalarp, Logic and Security Lab, Department of Computer Engineering, King Mongkut's University of Technology Thonburi, Bangkok, Thailand*
- *Prof. R. Ponalagusamy, Head, Department of Mathematics, National Institute of Technology, Tiruchirappalli, India*
- *Dr. Kadiyala Ramana, Annamacharya Institute of Technology and Sciences, Andhra Pradesh, India*
- *Dr. Hassan Reza (WC Steering Committee), UND Aerospace, University of North Dakota, Department of Computer Science, Grand Forks, North Dakota, USA*
- *Dr. Akash Kumar Singh, IT Architect, IBM, Sacramento, California, USA*
- *Ashu M. G. Solo (WC Publicity Chair), Fellow of British Computer Society, Principal/R&D Engineer, Maverick Technologies America Inc.*
- *Dr. Sim Kok Swee, Faculty of Engineering and Technology, Jalan Ayer Keroh Lama, Melaka, Malaysia*
- *Prof. Ousmane Thiare, Department of Computer Science, Gaston Berger University, Senegal*

- *Prof. Keshav D. Verma, Chairman, Department at S.V. (P.G.) College, Aligarh, India; Founder and Director, MS Research Laboratory (MSRL), India; Editor-in-Chief: IJNMC Journal + IJBRE Journal + MSRJ Journal*
- *Prof. Layne T. Watson (WC Steering Committee), IEEE Fellow; NIA Fellow; ISIBM Fellow; Fellow of The National Institute of Aerospace; Virginia Polytechnic Institute & State University, Virginia, USA*
- *Dr. Wei Wei, Xi'an University of Technology, Xi'an, P. R. China*
- *Dr. Alexander Woehrer, St. Poelten University of Applied Sciences, St. Poelten, Austria*
- *Prof. Jongwook Woo, Director, HiPiC; California State University, Los Angeles, California, USA*
- *Prof. Jeff Zadeh, Collegiate Professor and Program Chair, University of Maryland, University College Europe, Germany; University of Maryland, USA*

We express our gratitude to keynote, invited, and individual conference/tracks and tutorial speakers - the list of speakers appears on the conference web site. We would also like to thank the followings: UCMSS (Universal Conference Management Systems & Support, California, USA) for managing all aspects of the conference; Dr. Tim Field of APC for managing the printing of the proceedings; and the staff of Monte Carlo Resort in Las Vegas for the professional service they provided. Last but not least, we would like to thank the Co-Editors of GCA'12: Prof. Hamid R. Arabnia, Prof. George A. Gravvanis, and Ashu M. G. Solo.

We present the proceedings of GCA'12.

***Steering Committee, GCA 2012***

***<http://www.world-academy-of-science.org/worldcomp12/ws>***

