**PROCEEDINGS OF**
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**SOFTWARE ENGINEERING RESEARCH & PRACTICE**

# SERP 2011

## Volume II

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# Foreword

It gives us great pleasure to introduce this collection of papers to be presented at the 2011 International Conference on Software Engineering Research and Practice (SERP'11), July 18 through 21, 2011, at Monte Carlo Resort, Las Vegas, USA.

**The Academic Co-Sponsors of this year's conference include:**
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**Corporate Co-Sponsors, Co-Sponsors At-Large and Organizers include:**
A number of university faculty members and their staff (names appear below and also on the cover of the proceedings); Microsoft Research; Altera Corporation; Pico Computing; World Academy of Science (www.world-academy-of-science.org/); Computer Science Research, Education, and Applications Press; High Performance Computing for Nanotechnology (HPCNano); International Society of Intelligent Biological Medicine; World Academy of Biomedical Sciences and Technologies; The International Council on Medical and Care Compunetics; The UK Department for Business, Enterprise & Regulatory Reform, UK; Scientific Technologies Corporation; and HoIP - Health without Boundaries. In addition, several publishers of computer science and computer engineering books and journals, chapters and/or task forces of computer science associations/organizations from 8 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 52% 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 24%; 19% of the remaining papers were accepted as poster papers.

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 SERP'11 Program Committee who we hope will offer their help again in organizing the next year's conference (SERP'12). The SERP'11 Program Committee members were:

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- *Dr. Songfeng (Andy) Zheng, Missouri State University, Springfield, Missouri, USA*

We express our gratitude to keynote and invited speakers of WORLDCOMP 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 and Associate Editors of SERP'11: Drs. Hassan Reza, Leonidas Deligiannidis, Austin Melton, Vince Schmidt, and Ashu M. G. Solo.

We present the proceedings of SERP'11.

Hamid R. Arabnia, Ph.D.
Professor, Computer Science, University of Georgia, USA
**General Chair & Coordinator, SERP'11**

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