State of the Journal

Albert Y. Zomaya

Welcome to the May issue of TC. In this issue I will share with you some of the activities and developments that TC is undertaking.

During 2010, TC has maintained its position as a leading and prestigious publication in the field of Computing. The number of manuscript submissions (inclusive of Special Sections) was 715 papers. The number of papers published was 141 papers plus approximately 40 additional papers were posted online as preprints (with an acceptance rate around 25 percent). Going by the number of papers received to date, I can guarantee you that 2011 will be another successful year for TC.

The page budget stood at 1776 pages during 2010 as has been increased to 1872 pages for 2011. As a measure of overall timely review, over the last 12 months the delay encountered from submission to first notification has been decreased to just 66 days. I would like to extend my gratitude to the wonderful team of Associate Editors, Guest Editors, reviewers and IEEE Computer Society staff. Of course, we cannot forget our loyal authors and readers. I thank you all.

A number of special sections have been published in 2011. TC does not publish special issues and the special sections are the mechanism used to enable the organization of mini special issues to publish on topical themes that are of importance to our readership. For example, in the January, 2011 issue, a special section was published on Dependable Computer Architecture (by Dimitris Gizopoulos and Shubhendu Mukherjee) and in the February, 2011 issue, a special section was published on Computer Arithmetic (by Javier Bruguera, Marius Cornea and Debjit Das Sarma). The organization of such special sections will continue in 2011. Information on the scheduled special sections appears on the journal’s homepage.

As we celebrate the 60th anniversary of TC during 2011 some of our past volunteers and also our readers join in the festivities by expressing some of their thoughts and memories of TC on the journal homepage in the form of short quotes (see http://www.computer.org/portal/web/tc/60th). Please feel free to send me your congratulatory quotes and I will endeavor to have them published.

In early 2011, few of our Associate Editors concluded their tenure: John Antonio, Eric Schwarz, Mazin Yousif and Yin-Min Wang. I would like to express our thanks to these colleagues for all their professionalism and hard work and wish them well with their future endeavors.

Also, in 2011 several new Associate Editors have joined our team: David A. Bader, Paolo Bellavista, Albert M. K. Cheng, Sung Woo Chung, Thomas M. Conte, Minyi Guo, Ying-Dar Lin, Rami Melhem, Alberto Nannarelli, Hamid Sarbazi-Azad, Jim Plusquellie, Domenico Talia, Huapeng Wu and Jingling Xue. These colleagues were chosen through an extensive selection process which was approved by the IEEE Computer Society. I would like to welcome them to the board and I am sure their presence will contribute to the continued success of TC.

Please feel free to send me your suggestions and recommendations. I welcome your ideas and suggestions on ways by which we can improve TC. I also look forward to receiving your technical submissions.

Albert Y. Zomaya
Editor-in-Chief

For information on obtaining reprints of this article, please send e-mail to:
tc@computer.org.
David A. Bader is a full professor in the School of Computational Science and Engineering, College of Computing, at Georgia Institute of Technology, and Executive Director for High Performance Computing. Dr. Bader is a lead scientist in the DARPA Ubiquitous High Performance Computing (UHPC) program. He received his PhD in 1996 from The University of Maryland, and his research is supported through highly-competitive research awards, primarily from NSF, NIH, DARPA, and DOE. Dr. Bader serves on the Research Advisory Council for Internet2, the Steering Committees of the IPDPS and HiPC conferences, the general chair of IPDPS 2010 and chair of SIAM PP12. He is an associate editor for several high impact publications including the Journal of Parallel and Distributed Computing (JPDC), ACM Journal of Experimental Algorithmics (JEA), IEEE DS Online, Parallel Computing, and Journal of Computational Science, and has been an associate editor for the IEEE Transactions on Parallel and Distributed Systems (TPDS). Professor Bader is an IEEE Fellow, a National Science Foundation CAREER Award recipient, and has received numerous industrial awards from IBM, NVIDIA, Intel, Cray, Sun Microsystems, and Microsoft Research. He served as a member of the IBM PERCS team for the DARPA High Productivity Computing Systems program, was a distinguished speaker in the IEEE Computer Society Distinguished Visitors Program, and has also served as Director of the Sony-Toshiba-IBM Center of Competence for the Cell Broadband Engine Processor. Dr. Bader’s interests are at the intersection of high-performance computing and real-world applications, including computational biology and genomics and massive-scale data analytics. He has cochaired a series of meetings, the IEEE International Workshop on High-Performance Computational Biology (HiCOMB), co-organized the NSF Workshop on Petascale Computing in the Biological Sciences, written several book chapters, and coedited special issues of the Journal of Parallel and Distributed Computing (JPDC) and IEEE TPDS on high-performance computational biology. He is also a leading expert on multicore, manycore, and multithreaded computing for data-intensive applications such as those in massive-scale graph analytics. He has coauthored over 100 articles in peer-reviewed journals and conferences, and his main areas of research are in parallel algorithms, combinatorial optimization, massive-scale social networks, and computational biology and genomics.

Paolo Bellavista is an associate professor of computer engineering, within the Department of Electronics, Computer Science, and Systems (DEIS) of the University of Bologna, where he teaches several courses about distributed systems, advanced computer networks, and mobile systems/services. His research activities span from mobile computing to mobile middleware, from location/context-aware services to adaptive multimedia streaming in wired/wireless heterogeneous networks, from vehicular sensor networks to social collaboration in spontaneous networks and scalable pervasive environments, also integrated with the cloud. He has coauthored more than 120 papers, 35 of them in major international journals and magazines. He has organized several international conferences (as General/Technical Chair) and is serving in several Editorial Boards, e.g., for IEEE Transactions on Network and Service Management, IEEE Transactions on Services Computing, IEEE Communications, Springer Journal of Network and Systems Management, and Elsevier Pervasive and Mobile Computing Journal. He is a senior member of IEEE and ACM. You can find more information about him at his Web page: http://lia.deis.unibo.it/Staff/PaoloBellavista/.

Albert Mo Kim Cheng is Professor of Computer Science at the University of Houston, where he is the founding Director of the Real-Time Systems Laboratory. He received the BA with Highest Honors in Computer Science, graduating Phi Beta Kappa at age 19, the MS in Computer Science with a minor in Electrical Engineering at age 21, and the PhD in Computer Science at age 25, all from The University of Texas at Austin, where he held a GTE Foundation Doctoral Fellowship. He has served as a technical consultant for several organizations, including IBM and Shell, and was also a visiting faculty in the Departments of Computer Science at Rice University and at the City University of Hong Kong. Dr. Cheng is the author/coauthor of over 145 refereed publications in leading journals (including IEEE Transactions on Computers, IEEE Transactions on Software Engineering, and IEEE Transactions on Knowledge and Data Engineering) and top-tier conferences (including RTSS, RTAS, RTCSA, ICESS, ICPADS, ISLPED, LCN, ICMCS, COMPASC, AINA, PADL, IPPS, IPDPS, and ICPP) in his areas of research, and has received numerous awards, including the US National Science Foundation Research Initiation Award and the Texas Advanced Research Program Grant. He has been invited to present seminars, tutorials, panel positions, and keynotes at over 80 conferences, universities, and organizations. He is and has been on the technical program committees (including several program chair positions) of over 160 conferences, symposia, workshops, and editorial boards (including the IEEE Transactions on Software Engineering, 1998-2003). His research interests include real-time and embedded systems, cyber-physical systems, power/thermal-aware computing, formal verification, software engineering, knowledge-based systems, networking, and operating systems. Dr. Cheng is the author of the popular senior/graduate-level textbook entitled Real-Time Systems: Scheduling, Analysis, and Verification (John Wiley & Sons), 2nd printing with updates, 2005. He is a senior member of the IEEE, and has been nominated to become a fellow of the IEEE in 2011.
Sung Woo Chung is an associate professor at the Division of Computer and Communication Engineering of Korea University. He received his BS and PhD degrees from Seoul National University, Korea in 1996 and 2003, respectively. Before pursuing his academic career in 2006, he was a senior engineer at Samsung Electronics where he implemented an ARM-based processor simulator and optimized interconnects for system-on-chips. His research interests are architectural/OS level power management and thermal management for computer systems including microprocessors. He coauthored over ninety referred papers and holds over twenty patents. He also has served on over thirty international conference committees, including IEEE International Conference on Computer Design (ICCD), International Symposium on Quality Electronic Design (ISQED), and ACM Symposium on Applied Computing (SAC).

Thomas M. Conte (S’84-M’92-SM’99-F’05) received his Bachelor of Electrical Engineering degree from the University of Delaware in 1986. He went on to receive his MS and PhD in Electrical Engineering from the University of Illinois at Urbana-Champaign in 1988 and 1992, respectively. From 1995 to 2008, he was on the faculty of the department of Electrical and Computer Engineering and Director of the Center for Embedded Systems Research at North Carolina State University. He is currently a professor of Computer Science, the College of Computing, Georgia Institute of Technology and codirector of the Center for Hybrid Multicore Productivity Research. While on leave from NC State in 2000-2001, Conte served as the Chief Microarchitect and Manager of Back End Compiler Development for DSP startup BOPS, inc. He was the founding editor in chief of the Journal of Instruction-Level Parallelism and current editor in chief of ACM Transactions on Architecture and Compiler Optimization. He is an associate editor of the IEEE Micro and IEEE Computer magazines. Conte is a past chair of the IEEE CS Technical Committee on Microprogramming and Microarchitecture (TC-uARCH) and the ACM Special Interest Group on Microarchitecture (SIGMICRO). He also serves as the chair of the IEEE Computer Society Awards Committee and is a member of the Computer Society’s Board of Governors. Tom Conte currently directs a group of PhD students on the TINKER project in topics spanning computer architecture and compiler optimization, including manycore architectures, microprocessor architectures, back-end compiler code generation, architectural performance evaluation and embedded computer system architectures. His research is or has been supported by Compaq, DARPA, Digital, Hewlett-Packard, IBM, Intel, Qualcomm, Red Hat, Sun Microsystems, Texas Instruments, and the US National Science Foundation. He is the recipient of an NSF CAREER award, the IBM T. J. Watson Partnership Award. Conte is a fellow of the IEEE.

Minyi Guo received the BSc and ME degrees in computer science from Nanjing University, China; and the PhD degree in computer science from the University of Tsukuba, Japan. He is currently distinguished professor and head of the Department of Computer Science and Engineering, Shanghai Jiao Tong University (SJTU), China. Before joined SJTU, Dr. Guo had been a professor and department chair of school of computer science and engineering, University of Aizu, Japan. Dr. Guo received the national science fund for distinguished young scholars from NSFC in 2007. His present research interests include parallel/distributed computing, compiler optimizations, embedded systems, pervasive computing, and cloud computing. He has more than 230 publications in major journals and international conferences in these areas, including the IEEE Transactions on Parallel and Distributed Systems, the IEEE Transactions on Nanobioscience, the ACM Transactions on Autonomous and Adaptive Systems, the Journal of Parallel and Distributed Computing, INFOCOM, IPDPS, ICS, CASES, ICPP, WWW, PODC, etc. He received five best paper awards from international conferences. He is on the editorial board of IEEE Transactions on Parallel and Distributed Systems and Journal of Computer Science and Technology. Dr. Guo is a senior member of IEEE, member of ACM, IEICE IPSJ, and CCF.

Ying-Dar Lin is professor of Computer Science at National Chiao Tung University (NCTU) in Taiwan. He received his PhD in Computer Science from UCLA in 1993. He spent his sabbatical year as a visiting scholar at Cisco Systems in San Jose in 2007–2008. Since 2002, he has been the founder and director of Network Benchmarking Lab (NBL, www.nbl.org.tw), which reviews network products with real traffic. He also cofounded L7 Networks Inc. in 2002, which was later acquired by D-Link Corp. His research interests include design, analysis, implementation, and benchmarking of network protocols and algorithms, quality of services, network security, deep packet inspection, P2P networking, and embedded hardware/software codesign. His work on “multi-hop cellular” has been cited over 500 times. He is currently on the editorial boards of IEEE Transactions on Computers, IEEE Communications Magazine, IEEE Communications Surveys and Tutorials, IEEE Communications Letters, Computer Communications, and Computer Networks. He published a textbook “Computer Networks: An Open Source Approach” with Ren-Hung Hwang and Fred Baker through McGraw-Hill in February 2011. It is the first text that interleaves open source implementation examples with protocol design descriptions to bridge the gap between design and implementation.
Rami Melhem received a BE in Electrical Engineering from Cairo University in 1976, an MA degree in Mathematics and an MS degree in Computer Science from the University of Pittsburgh in 1981, and a PhD degree in Computer Science from the University of Pittsburgh in 1983. He was an assistant professor at Purdue University prior to joining the faculty of The University of Pittsburgh in 1986, where he is currently a professor of Computer Science and where he was the chair of the Computer Science Department from 2000 to 2009. His research interests include Power Management, Real-Time and Fault-Tolerant Systems, Optical Networks, High Performance Computing and Parallel Computer Architectures. Dr. Melhem served on program committees of numerous conferences and workshops. He was on the editorial board of the *IEEE Transactions on Computers* (1991-1996), the *IEEE Transactions on Parallel and Distributed systems* (1998-2002), the *Computer Architecture Letters* (2001-2010) and the *Journal of Parallel and Distributed Computing* (2003–2011). He is serving on the advisory boards of the IEEE technical committees on Computer Architecture. He is the editor for the Springer Book Series in Computer Science and is on the editorial board of *Sustainable Computing Informatics and Systems* and the *International Journal of Embedded Systems*. Dr. Melhem is a fellow of IEEE and a member of the ACM.

Alberto Nannarelli is an associate professor at the Technical University of Denmark. He graduated in electrical engineering from the University of Roma “La Sapienza”, Italy, in 1988 and received the MS and the PhD in electrical and computer engineering from the University of California at Irvine in 1995 and 1999, respectively. He worked for SGS-Thomson Microelectronics and for Ericsson Telecom as design engineer and for Rockwell Semiconductor Systems as a summer intern. From 1999 to 2003 he was with the Department of Electrical Engineering, University of Roma “Tor Vergata”, Italy, as a post-doc researcher. His research interests include computer arithmetic, computer architecture, and VLSI design.

Hamid Sarbazi-Azad received his BSc in electrical and computer engineering from Shahid-Beheshti University, Tehran, Iran, in 1992, his MSc in computer engineering from Sharif University of Technology, Tehran, Iran, in 1994, and his PhD in computing science from the University of Glasgow, Glasgow, United Kingdom, in 2002. He is currently with the department of computer engineering at Sharif University of Technology, and heads the IPM School of Computer Science, Tehran, Iran. His research interests include high-performance computer architectures, NoCs and SoCs, parallel and distributed systems, performance modeling/evaluation, graph theory and combinatorics, wireless/mobile networks, on which he has published more than 250 refereed conference and journal papers. He received Khwarizmi International Award in 2006, and TWAS Young Scientist Award in engineering sciences in 2007, and Sharif University Distinguished Researcher awards in years 2004, 2007, 2008, and 2010. He is a member of managing board of Computer Society of Iran (CSI), and has served as the editor-in-chief for the *CSI Journal on Computer Science and Engineering*, *Elsevier’s Computers & Electrical Engineering journal*, and *International Journal of Computers & their Applications*. He has also served as a guest editor for 11 special issues on high-performance computing architectures and networks in related journals, and as a chair or program chair of several international conferences/symposiums/workshops.

Jim Plusquellic received the MS and PhD degrees in Computer Science from the University of Pittsburgh in 1995 and 1997, respectively. He is now at the University of New Mexico, as an associate professor in Computer Engineering. His research interests include Hardware-Oriented Security and Trust, Design for Manufacturability, Defect-Based Test, Small Delay Fault Test, Model-to-Hardware Correlation and Process Monitors. He has received several awards including an Inovys structural tester donated by Verigy, Inc. in 2010, the VLSI Test Symposium Best Paper Award in May 2005, the ACM Distinguished Service Award in June 2003, IBM Austin CAS Fellow Awards in 2001 and 2002 and International Test Conference “5 Years of Continuous Service Award” in 2006. Professor Plusquellic is on the Technical Program Committee for International Test Conference (ITC), and has recently served on the TPCs for the VLSI Test Symposium (VTS), the International Conference on Computer-Aided Design (ICCAD) and the International Symposium on Hardware-Oriented Security and Trust (HOST). He is also a cofounder of HOST and was general chair in 2010 when the HOST was promoted from a workshop to a symposium. He was general chair of the Defect-Based Testing Workshop (DBT) in 2006 and served as program chair for the HOST Workshop in 2008 and 2009. He has recently accepted the position of associate editor for *Transactions on Computers*. Professor Plusquellic holds three patents, one for a defect-based calibration and testing technique he developed in 2003, one with IBM for a test structure he invented while on sabbatical at Austin Research Laboratory in 2003-2004 and a third recently submitted by UNM for a Power Grid Physical Unclonable Function. He has published more than 70 papers in journals, conferences and workshops and is a member of the IEEE.
Domenico Talia is a full professor of computer engineering at the University of Calabria and the Director of ICAR-CNR. He received the Laurea degree in Physics at University of Calabria. His research interests include parallel computing, Grid services, distributed knowledge discovery, parallel and distributed data mining algorithms, cloud computing, mobile computing, and peer-to-peer systems. Talia published five books and more than 250 papers in international journals such as Communications of the ACM, Computer, IEEE TKDE, IEEE TSE, IEEE TSMC-B, IEEE Micro, ACM Computing Surveys, FGCS, Parallel Computing, IEEE Internet Computing and conference proceedings. He is a member of the editorial boards of the Future Generation Computer Systems journal, the International Journal on Web and Grid Services, the Scalable Computing: Practice and Experience journal, MultiAgent and Grid Systems: An International Journal, International Journal of Web and Grid Services, and the Web Intelligence and Agent Systems International journal. He was a member of the Executive Committee of the CoreGRID Network of Excellence. He is serving as a program chair or program committee member of several conferences and is a member of the ACM and the IEEE Computer Society.

Huapeng Wu received the BS degree in electrical engineering, and the MSc degree in computer science, both from the University of Science and Technology of China (USTC), in 1987 and 1992, respectively, and the PhD degree in electrical engineering from the University of Waterloo in 1999. He was a visiting assistant professor with the Department of Electrical and Computer Engineering, Illinois Institute of Technology, for the academic year of 1999. He did postdoctoral work with the Centre for Applied Cryptographic Research at the University of Waterloo from 2000 to 2002. He is now an associate professor with the Department of Electrical and Computer Engineering, University of Windsor. His current research interests include algorithms and architectures for computations in Galois fields, fast implementation of public key cryptography systems, computer arithmetic and computer network security. He is a member of the IEEE.

Jingling Xue received his BSc and MSc degrees in Computer Science and Engineering from Tsinghua University, China in 1984 and 1987, respectively, and his PhD degree in Computer Science and Engineering from Edinburgh University, United Kingdom in 1992. He has been on the faculties at Tsinghua University, China, National Technological University of Singapore and University of New England, Australia. He is currently a professor in the School of Computer Science and Engineering, University of New South Wales, Australia, where he heads the Programming Languages and Compilers Group and has been the Deputy Head of School since 2006. Jingling Xue’s main research interest has been programming languages and compilers for about 20 years. He is currently supervising a group of postdocs and PhD students on a number of topics including programming and compiler techniques for multi-core processors and embedded systems, concurrent programming models, object orientation, static and dynamic program analysis for bugs and security vulnerabilities, and automatic parallelization of programs for parallel and distributed systems. His research has been supported by Intel, Sun Microsystems and Australian Research Council.