

Special Issue: Selected Papers of the IEEE International Conference on  
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## Guest Editorial

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Quality of software has become an important issue with the increasing integration of software in various aspects of human society. Today's software are very complex and they are deployed in a wide variety of execution environments and application domains. Both academia and industries are focusing on the research in software applications as many of our complex systems are software controlled, which motivated the publication of the current Special Issue in software.

This Special Issue presents selected papers from the twelfth conference of the series (ICCIT 2009) held during December 21-23, 2009 at the Independent University Bangladesh. The first one was held in Dhaka, Bangladesh, in 1998. Since then the conference has grown to one of the largest computer and IT related research conferences in the South Asian region, with participation of academics and researchers from many countries around the world. Starting in 2008 the proceedings of ICCIT are included in IEEEExplore.

In 2009, a total of 473 full papers were submitted to the conference of which 150 were accepted after reviews conducted by an international program committee comprising 84 members from 16 countries with assistance from 83 reviewers. This was tantamount to an acceptance rate of 31.7%. From these 150 papers only 9 highly ranked papers were invited for this Special Issue. The authors were invited to enhance their papers significantly and submit the same for review. Of those only five papers survived the review process and have been selected for inclusion in this Special Issue. The authors of these papers represent academic and/or research institutions from Bangladesh, Japan, and Norway. These five papers cover three domains of computing namely, data exchange, data search, and software development and engineering.

In the first paper of this Special Issue, S. Karim proposes a data-exchange algorithm that produces semantically correct maybe answers to simple relational algebra queries over target schemas of data exchange under the closed world assumption. Given that there may be infinitely many maybe answers, he uses compact representation to compute possible (i.e., maybe) answers incrementally. The algorithm is then implemented for a fragment of relational algebra.

M. Asaduzzaman, M. Shahjahan, and K. Murase, in the second paper, present a data search method that extracts interesting rules from the heterogeneous search histories of shopping in the Internet. They produce a homogeneous data set from their heterogeneous search histories without changing their characteristics of data. These data are trained by unsupervised neural network to extract interesting rules by inspecting the attributes of the customers.

The last three papers focuses on software development and engineering. In the first of these, S. Islam and M. Rokonzaman split work breakdown structures (WBS) process into smaller process units which take right set of inputs with the right set of standard and put right set of practices in place to produce the work products with required standards and quality. The authors uses business case analysis phase of software projects as an example to demonstrate process centric concept of WBS to deal with project management challenges. Next, M. Rokonzaman and K. Choudhury integrate economics of software reuse with market positioning for delivering customized software solutions and thus improve the relevant decision making ability of software engineers. Finally, S. Islam, and S. Houmb consider the risks such as geographical and cultural distance otherwise associated with offshore outsourcing. The authors present a risk management framework that assesses and manages risks during the early development phases when risks can be more easily tackled at a reasonable cost. They use a goal-risk casual relationship model that identify and link project goals, risks and treatments and report on a study project focusing on the efficiency of the model.

Finally, the Guest Editors would like to express their sincere gratitude to the anonymous reviewers of the Special Issue from different countries who have given immensely to this process. They have responded to the Guest Editors in the shortest possible time and dedicated their valuable time to ensure that the Special Issue contains high-quality papers with significant novelty and contributions.

## Guest Editors



**Mohammad Zulkernine** is an Associate Professor in the School of Computing of Queen's University, Canada, where he leads the Queen's Reliable Software Technology (QRST) research group. In 2009-10, he was a Visiting Professor in the Dept. of Information Engg. & Computer Science of the University of Trento, Italy. Dr. Zulkernine received his BSc from Bangladesh University of Engineering and Technology and MEng from Muroran Institute of Technology, Japan. He received his PhD from the University of Waterloo, Canada, where he belonged to the university's Bell Canada Software Reliability Laboratory. Dr. Zulkernine's current research focuses on software reliability and security. His research projects are funded by a number of provincial and federal research organizations of Canada, while he is having industry research partnerships with Bell Canada and Cloakware Corporation. Dr. Zulkernine is a senior member of the IEEE, a member of the ACM, and a licensed professional engineer of the province of Ontario, Canada.



**Mohammad Kaykobad** is a professor at the Department of Computer Science and Engineering at Bangladesh University of Engineering and Technology. He played a pioneering role in introducing International Conference on Computer and Information Technology (ICIT) being held in the oil of Bangladesh since 1998. He is also one of the pioneers of organizing mathematics, Informatics and Science Olympiads in the country. Dr Kaykobad received Bangladesh Academy of Sciences Gold medal in senior group of physical sciences. He has also received outstanding coach award in 2002 in Honolulu, Hawaii for his contribution to ACM programming. He has been recognized as Distinguished Alumni of his Alma Mater The Flinders University of South Australia. Dr Kaykobad is a Fellow of Bangladesh Academy of Sciences.



**Mohammed Yeasin** is an Associate Professor of the department of Electrical and Computer Engineering, adjunct faculty member of Biomedical Engineering and Bioinformatics Program, and an affiliated member of the Institute for Intelligent Systems at The University of Memphis. He received his B.Sc. degree in Electrical and Electronic Engineering from Khulna University of Engineering and Technology, Bangladesh in 1989, M.Sc. in Computer Science and Engineering from Bangladesh University of Engineering and Technology in 1994 and the Ph.D. in Electrical Engineering from Indian Institute of Technology, Bombay, India in 1998. He received National Science Foundation (NSF) Early Career Award for his research on co-analysis of signal and sense. Dr. Yeasin leads the Computer Vision, Perception and Image Analysis Laboratory that focuses on (i) semantic integration and mining of large heterogeneous data, (ii) robust analysis, mining and modeling of all possible types of signals (text, speech, images, video, time series and gene expressions etc.), and (iii) developing service

oriented architecture in providing Web services and sharing research results.



**Mohammad Ataul Karim** is Vice President for Research at Old Dominion University in Norfolk, Virginia. Previously, he served as dean of engineering at the City University of New York. His research areas include information processing, pattern recognition, computing, displays, and electro-optical devices and systems. Dr. Karim is author of 17 books, 7 book chapters, and over 350 articles. He is North American Editor of *Optics & Laser Technology* and an Associate Editor of the *IEEE Transactions on Education*. He has served as guest editor for over twenty journal special issues. Professor Karim is an elected fellow of the Institution of Electrical and Electronics Engineers (IEEE), Optical Society of America (OSA), Society of Photo-Instrumentation Engineers (SPIE), the Institute of Physics (InstP), the Institution of Engineering & Technology (IET), and Bangladesh Academy of Sciences. He received his BS in physics in 1976 from the University of Dacca, Bangladesh, and MS degrees in both physics and electrical engineering, and a Ph.D. in electrical engineering from the University of Alabama respectively in 1978, 1979, and 1981.