

Special Issue on New Trends in Innovations in Information Technology  
Selected Best Papers of the 7th International Conference on Innovations in  
Information Technology (Innovations'11)

## Guest Editorial

The advance in Information Technology knowledge and expertise has been tremendous during the last couple of decades. The shift from batch systems, to online systems, to standalone systems, to networked systems, to Service-Oriented systems, and then later to the cloud of everything had changed the everyday life of humanity. Humans do not expect the same services and quality from nowadays IT systems as they used to in the past. Industry and academia have been doing their best to meet these expectations. However, there are a lot of issues to be improved, others to be done from scratch, and other to be removed and or replaced.

This special issue of the Journal of Software is another contribution in the same line as all previous serious contributions to the IT know-how. It is based primarily on sound extensions of selected papers from the 2011 edition of the International Conference on Innovations in Information Technology, held between 25 and 27<sup>th</sup> of April 2011 in Abu Dhabi, United Arab Emirates. Moreover, many authors with proven-expertise in their research domains have been invited to submit papers. Then, carefully selected papers have been added to enrich the special issue with the condition that extended papers should contain at least 30% more new material to be accepted. All papers underwent thorough reviews where three independent reviewers have reviewed each paper. The final round led to the acceptance of nine papers and authors have been asked to implement reviewers' comments, which then have been re-checked.

The paper by Maamar et al. presents an approach for weaving preferences into Web Services where the specification of Web Services providers' are integrated into Web Services operations. A Web Service explicitly appends these preferences into data being exchanged. The paper focuses on Privacy and Partnership preferences. The paper by Mizouni et al. presents an approach to gather software requirements baseline, which are those that must be delivered in a software version. To help project managers in their decisions, the authors propose a new modeling and simulation approach that takes into account features priorities. It then calculates the probabilities of having useful features implemented within the timeframe of the project while incorporating human resources uncertainties to come up with a realistic schedule and estimation.

Nader et al. propose a middleware to help users and applications in retrieving web information of interests from the huge amount of public raw data on the Internet. The main idea is based on finding fixed titles or headers that appear in browsers for HTML documents. These fixed titles or headers are used as reference points to know the position of the required dynamic information. Mahdi et al. are using temporal logic to query semantic graphs using model checking. The idea is to adapt model checking techniques to semantic web. A method to convert Resource Description Framework to  $\mu$ SMV and PROMELA is presented.

Feda et al. investigates offloading and migration mechanisms that facilitate provision of adaptive and distributed mobile Web Services to avoid draining the device battery by heavy computation or communication. The proposed approach goes through three phases. The first phase integrates these mechanisms with the SOAP and REST architectures producing extended mobile Web service frameworks. The second phase relies on the outperforming REST-based framework to examine four distinct strategies for mobile Web service distribution mechanisms. In the last phase, evaluation results of the second phase are interpreted as Fuzzy Logic rules. These rule sets are used to trigger and control offloading schemes.

Samir et al. proposes an approach based on probabilistic attack scenarios to evaluate qualitatively and quantitatively security policies over communication protocols. The approach consist of measure this relationship between attacks and applications by introducing a probabilistic verification evaluation. The proposed solution is based concurrency between models. PRISM was used for evaluation using the model checker. The results are promising and characterized by a fairly short evaluation delay and automatic security measurement.

The objective in the paper by Djamila et al. is to model and implement a supervision and control tool to be used during eLearning sessions. It allows the tutors to be aware of the work-progress status and makes a model for the average learner based on his/her actions and interactions. Three features are supported by the model: Synchronous supervision, asynchronous supervision and learner's guidance.

In his paper, Salem investigates the introduction of differentiated server selection during the phase of selection of service. This style of selection has the advantage of enhancing the probability that the selected server will provide a better quality of service. This is done through the possibility of keeping as much as possible the probability of servers generic while separating entities that handle specific policy requirements of applications.

M'hamdi et al. propose a scheduling algorithm that determines moments to check reputation of each agent in communities of agents. Deciding when to check this reputation has two dilemmas: ensure high reputation but without using many resources. The proposed scheduling algorithm helps the controller agent improve the quality of the

reputation mechanism, which increases the trust value of users toward the community. This algorithm is based on a class of games called Bayesian Stackelberg. The authors simulate and compare the efficiency the algorithm with other stochastic techniques, namely uniform, normal and Poisson distributions.

We would like to thank all those who participated in this special issue on Innovations in Information Technology conference 2011. Thanks go first to the editor in Chief of the Journal of Software Dr. Kassem Saleh for his cooperation and patience throughout this process. Second we thank the reviewers for their participation in the review process, and we recognize the importance and contributions of their thorough reviews and their valuable comments.

#### Guest Editors:

**M. Adel Serhani**, UAE University, United Arab Emirates

**A. Benharref**, Abu Dhabi University, United Arab Emirates



**M. Adel Serhani** holds a Ph.D. degree in Computer Engineering from, Concordia University, Canada (August 2006). He is currently an assistant Professor in the Faculty of Information Technology, U.A.E University, Al Ain, U.A.E. He is also an adjunct faculty in CIISE, Concordia University, Canada. His research areas are on Web services computing with main focus on service selection, End-to-End QoS management in SOA, Web services composition. He is also working on Cloud computing, Service discovery in MANET, SOA based e-health architectures. He served on several Organizing and Technical Program Committee of many conferences. He chaired and co-chaired two workshops on topics related to his research areas. He also served in the Editorial board of a couple of journals. M. Adel has a large experience earned through his involvement and management of different R&D projects. He is also member of IEEE Body of

Knowledge on Services Computing, member of IEEE Service Computing Community, and Member of Service University. He has published more than 60 journal and conference papers.



**A. Benharref** received a PhD in Computer Engineering from Concordia University (Canada) in 2007. He spent one year (2008-2009) as Post-Doc Researcher in SAP Montreal and Concordia University, Canada. Since January 2009, he is an assistant professor of computer science at Abu Dhabi University, UAE. His interest domains include but not limited to: Web Services, Web Services composition, management of Web Service, QoS of Web Services, Cloud computing, software testing, protocol design and validation. He served on several Organizing and Technical Program Committee of many conferences. He has been involved in many R&D projects with close collaboration form academia and industry. He has published more than 40 journal and conference papers.