Guest Editorial:
Special Issue from ISCA Fall--2016 SEDE Conference

This Special Issue of IJCA is a collection of five refereed papers selected from the SEDE 2016: 26th International Conference on Software Engineering on Data Engineering, held during September 26-28, 2016, in Denver, Colorado, USA.

Each paper submitted to the conference was reviewed by at least two members of the International Program Committee, as well as by additional reviewers, judging the originality, technical contribution, significance and quality of presentation. After the conferences, five best papers were recommended by the Program Committee members to be considered for publication in this Special Issue of IJCA. The authors were invited to submit a revised version of their papers. After extensive revisions and a second round of review, the five papers were accepted for publication in this issue of the journal.

The papers in this special issue cover a broad range of research interests in the community of computers and their applications. The topics and main contributions of the papers are briefly summarized below.

JUAN C. QUIROZ of Sunway University and SERGIU M. DASCALU of University of Nevada Reno, USA presented a web application for the procedural generation of perturbations of 3D models in their paper "Interactive Shape Perturbation". The perturbations are encoded using GP, with an IGA allowing the user to quickly explore perturbations based on his/her preference. Their Procedural Content Generation (PCG) was implemented as a web application, allowing users to create perturbations on their web browser, without having to install libraries or plug-ins.

WENDY OSBORN and FATEMA RAHMAN of University of Lethbridge, Lethbridge, Alberta, CANADA, proposed and evaluated in their paper "Approximate k-Nearest Neighbour Search with the Area Code Tree" a strategy for approximate k-nearest neighbour searching using the Area Code tree. They found that when the Area Code tree is used for locating approximate nearest neighbours, that low constant-time search is achieved. In addition, in denser POI sets, higher accuracy is achieved for locating one nearest neighbour. This ultimately makes the Area Code tree a strong candidate for approximate continuous nearest neighbor processing for location-based services.

CHASE D. CARTHEN, VINH LE, RICHARD KELLEY, TOMASZ J. KOZUBOWSKI and FREDERICK C. HARRIS JR. of University of Nevada Reno, USA, introduced in their paper "Rewind: An Automatic Music Transcription Web Application" an Automatic Music Transcription (AMT) system named *Rewind* that boasts a new deep learning method for generating transcriptions at the frame level and web application. *Rewind*'s new deep learning method utilizes an encoder-decoder network where the decoder consists of a gated recurrent unit (GRU) or two GRUs in parallel and a linear layer and it allows users to transcribe, listen to, and see their music.

FRANCIS ONODUEZE and SHARAD SHARMA of Bowie State University, Maryland, USA described in their paper "Rijndael Algorithm for Database Encryption on a Course Management System" an implementation of the Rijndael algorithm for database encryption to increase the security of a Course Management System. The benefits and drawbacks of various database encryptions were studied based on the amount of data encrypted and modes of access to keep a balance between efficiency and security. The proposed algorithm was applied on a web interface that accepts users' login details, secures through a thorough encryption process, and stores cipher text in the database.

SALEH M. ALNAELI, MELISSA M. SARNOWSKI, CALVIN MEIER and MARK HALL of University of Wisconsin Colleges, USA presented in their paper "Evolution of the Multicore Adaptability of Scientific Software Systems" an empirical study on the challenges of scientific software system in utilizing the full advantage of modern multicore technologies. Twelve open source scientific systems were studied, comprising over 5.4 million lines of code and containing more than 84.5 thousand for-loop statements. They found that the greatest inhibitor to parallelizing scientific software systems is the presence of function calls with side effects, followed closely by data dependency and jumping statements. The study proposes some software engineering techniques to improve the parallelizability of scientific systems.

As guest editor's we would like to express our deepest appreciation to the authors and the program committee members of the conference these papers were selected from.

We hope you will enjoy this special issue of the IJCA and we look forward to seeing you at a future ISCA conference. More information about ISCA society can be found at http://www.isca-hq.org.

Guest Editors:

Frederick C. Harris, Jr, University of Nevada, Reno, USA, SEDE 2016 Conference Chair
Sergiu M. Dascalu, University of Nevada, Reno, USA, SEDE 2016 Program Chair
Yan Shi, University of Wisconsin-Platteville, USA, SEDE 2016 Program Chair

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