Preface to the special issues devoted to CLEI 2015

Hernán Astudillo  
Universidad Técnica Federico Santa María, Chile  
hernan@inf.utfsm.cl

Dennis Barrios-Aranibar  
Universidad Católica San Pablo, Arequipa, Perú  
dbarrios@ucsp.edu.pe

Guillermo E. Calderón Ruiz  
Universidad Católica de Santa María, Perú  
gcalderon@ucsm.edu.pe

Héctor Cancela  
Facultad de Ingeniería, Universidad de la República, Uruguay  
cancela@fing.edu.uy

Tony Clear  
School of Engineering, Computer and Mathematical Sciences, 
Auckland University of Technology, New Zealand  
tony.clear@aut.ac.nz

Nelly Condori-Fernández  
VU University Amsterdam, The Netherlands  
n.condori-fernandez@vu.nl

Alex Cuadros  
Universidad Católica San Pablo, Perú  
alex@ucsp.pe

Diego P. Pinto-Roa  
Universidad Nacional de Asunción, Paraguay  
dpinto@pol.una.py

Adenilso Simao  
Universidade de São Paulo, Brasil  
adnilso@icmc.usp.br

Francisco Tirado  
Universidad Complutense de Madrid, España  
ptirado@ucm.es

Yván Tupac  
Ciencia de la Computación, Universidad Católica San Pablo, Perú  
ytupac@ucsp.edu.pe
As joint invited editors, we are proud to present the April 2016 and August 2016 issues of CLEIej, which include a number of revised and reviewed versions of the best papers presented at CLEI 2015 in Arequipa, Peru in October 2015. Authors were asked to prepare extended papers with new contributions with respect to the conference versions; a total of 16 papers were finally accepted and are now published in these two issues.

The April 2016 issue includes eight papers. The first one, "Impact of Thresholds and Load Patterns when Executing HPC Applications with Cloud Elasticity" by Vinicius Facco Rodrigues, Gustavo Rostirolla, Rodrigo da Rosa Righi, Cristiano André da Costa and Jorge Luis Victoria Barbosa study how the load thresholds used for triggering resource reconfiguration in high performance computing impact on application performance and resource consumption, concluding that these threshold values have an important impact in reactivity of a cloud computing platform and showing that inappropriate values result in lengthened application run-times.

The second one, "Balancing Energy and Performance in Dense Linear System Solvers for Hybrid ARM+GPU platforms" by Juan P. Silva, Ernesto Dufrechou, Pablo Ezzati, Enrique S. Quintana-Ortí, Alfredo Remón and Peter Benner, presents two linear system solvers which combine high performance as well as energy efficiency, as shown on computational tests showing important savings in both time and energy-consumption when compared with the state-of-the-art solvers running on a low-power CPU-GPU platform.

The third one, "Assessing a Methodological Proposal for the Design, Creation and Evaluation of Learning Objects Oriented to Educators with Diverse Educational and Technological Competencies" by Jorge J. Maldonado, Jorge L. Bermeo and Guillermo Pacheco, presents a methodological proposal for the design, creation and evaluation of learning objects, arising from the analysis of several learning object design methodologies currently used in Ibero-America.

The fourth one, "PICTOAPRENDE: Design and evaluation of a tool that contributes to the personal autonomy of children and youth diagnosed with autism spectrum disorder in Ecuador", by Andrea Cárdenas, Edison Segovia, Danni De la Cruz, Paul Mejía, Nancy Paredes and Johanna Tobar, presents the development and evaluation of an interactive software designed to improve oral communication, particularly in the case of children and youth who are diagnosed with autism spectrum disorder in Ecuador.

The fifth one, "Philosophy of Computer Science and its Effect on Education - Towards the Construction of an Interdisciplinary Group" by Sylvia da Rosa, Alejandro Chmiel and Federico Gómez, is focused on an interdisciplinary experience bringing together the didactic and the philosophy of computer science, contributing to the critical analysis of the discipline and its social perception.

The sixth one, "Vulcanus 2.0: A Recommender System for Accessibility" by Ismael Gomes Cardoso, Bruno Mota, Jorge Luis Victoria Barbosa and Rodrigo da Rosa Righi,
focuses on the development of a recommender system for accessibility needs, taking into account the user's past behavior and distribute personalized content and services, and employing concepts from ubiquitous computing to provide an effective system, whose computational efficiency is further enhanced by dynamic programming techniques to avoid unnecessary comparisons and attain a better average case scenario behavior.

The seventh one, "Combining Leaf Shape and Texture for Costa Rican Plant Species" by Jose Carranza-Rojas and Erick Mata-Montero, improves existing Computer Vision algorithms used to support plant classification based on images of their leaves, by adding an additional criterion based on texture, leading to significant improvements on the classification accuracy when applied to a set of 66 tree species from Costa Rica.

The eighth one, "An Adaptive and Hybrid Approach for Revisiting the Visibility Pipeline" by Ícaro Lins Leitão da Cunha and Luiz Marcos Garcia Gonçalves, tackles the visibility problem (the process of computing a visible set of primitives in the computational model of a scene), proposing a new hybrid approach based on viewing-frustum, back-face culling and occlusion models, which can be used in devices with no dedicated processors or with low processing power for real-time, on-line, interactive applications as 3D visualization, such as in virtual museums applications.

The August 2016 issue also includes eight papers. The first one, "A Multi-Objective Approach for VNE Problems using multiple ILP formulations" by Enrique Dávalos, Cristian Aceval, Víctor Franco and Benjamin Baran, tackles the optimal allocation of physical resources (nodes and links) to requirements of virtual networks, by presenting a multi-objective algorithm which takes simultaneously into account resource utilization and load balancing to give an approximation of the Pareto Front of solutions to the problem.

The second one, "Understanding Notional Machines through Traditional Teaching with Conceptual Contraposition and Program Memory Tracing" by Jeisson Hidalgo-Céspedes, Gabriela Marin and Vladimir Lara-Villagrán, discusses the introduction of conceptual contraposition and program memory tracing within a traditional "Programming II" (CS2) course, and presents an evaluation of how the students who were exposed to these methods, supported by constructivism learning theory, performed in the mentioned one term course.

The third one, "A User Interaction Bug Analyzer based on Imaging Processing" by Abel Méndez-Porras, Jorge Alfaro-Velasco, Marcelo Jenkins and Alexandra Martínez Porras, addresses the problem of finding bugs in mobile applications that can be attributed to user-interaction features. The approach followed consists in comparing the similarity between images taken before and after a user-interaction in order to detect bugs; a study, comprising 49 user-interaction feature tests over 15 mobile applications, shows high accuracy level of the proposed automated testing tool as compared to the results of manual testing.
The fourth one, "Automatic Glaucoma Detection Based on Optic Disc Segmentation and Texture Feature Extraction" by Maíla de Lima Claro, Leonardo de Moura Santos, Wallinson Lima e Silva, Flávio Henrique Duarte de Araújo, Nayara Holanda de Moura and André Macedo Santana, works towards developing an automatic detection method of glaucoma in retinal images. This task involved image database acquisition, optic disc segmentation, texture feature extraction in different color models, and image classification, which attained high accuracy results.

The fifth one, "Computerized Medical Diagnosis of Melanocytic Lesions based on the ABCD approach" by Laura Raquel Bareiro Paniagua, Deysi Natalia Leguizamón Correa, Diego P. Pinto-Roa, José Luis Vázquez Noguera and Lizza A. Salgueiro Toledo, proposes a system that receives a dermatoscopy image of a skin lesion and provides a diagnostic if the lesion is benign or malignant. The tool includes preprocessing, segmentation, feature extraction, and classification steps. The results on a given data-set of 104 dermatoscopy images are promising, and compare favorably to traditional diagnostic methods.

The sixth one, "Semantic Mining based on graph theory and ontologies. Case Study: Cell Signaling Pathways" by Carlos R. Rangel, Junior Altamiranda and Jose Aguilar, employs ontologies representing concepts from graph theory and cellular biology to do a semantic enrichment of signaling pathway networks in cells; this approach can be used to determine the sets of cells that are similar, including the set of the main cells in each community; results are presented in two cases, TGF-β and the Alzheimer Disease.

The seventh one, "An E-government Interoperability Platform Supporting Personal Data Protection Regulations" by Laura González, Andrés Echevarría, Dahiana Morales and Raúl Ruggia, discusses a solution for monitoring and enforcing data protection laws within an E-government Interoperability Platform. These problems arise when public agencies deploy interoperable software services to enable joint collaboration provide high-quality e-government services. As an example, the paper develops a case study based on the requirements posed by the Uruguayan Data Protection Law and the Uruguayan E-government Platform.

The last paper in this selection, "Configurable Web Warehouses construction through BPM Systems" by Andrea Delgado and Adriana Marotta, discusses how the process of building Data Warehouses, which involves a number of well-defined states traditionally carried out manually, can be automated using a Business Process Management approach. In order to support their proposal, the authors define a flexible Web Warehouse, and present a two-process sequence (including a configuration process and a feeding process) which supports the selection of the web sources and the definition of schemas and mappings, as well as the loading of the data from the web sources to the warehouse.

At the end of this long and demanding process, we particularly want to acknowledge the work of the anonymous reviewers who helped in the evaluation process, screening the papers and making many improvement suggestions, and whose role was instrumental in ensuring the high quality of all the papers that comprise these issues.