

## **Preface to the Best Papers from CIESC 2013 Special Issue**

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Since 1999, the Iberoamerican Congress on Higher Education in Computing (CIESC) has been held as one of the main associated scientific events of the Latin American Conference on Informatics (CLEI). Its purpose has been to stimulate and provide a space for academics and professionals to discuss topics centered on undergraduate and graduate education in Computing.

The XXI Iberoamerican Congress on Higher Education in Computing (CIESC 2013) took place at Naiguatá, Venezuela, in October 2013. This event congregated many researchers and graduate students who had the opportunity to share their results and experiences in many different topics, including proposals of pedagogical activities, studies related to experiences in classes, and diverse aspects of the design of new computer science curriculum.

A total of 52 papers were received and evaluated. Only 13 of these papers were accepted after a rigorous process of review, each of them reviewed by at least three members of the program committee. This special issue of the CLEI Electronic Journal is a selection of the best papers presented at CIESC 2013. Only the eight papers that were presented at the conference, by one of their authors, were pre-selected to participate as invited papers for this special issue. A second process of review was then conducted in order to select the best papers to be published at CLEI EJ.

Finally a total of six papers were selected for this special issue. The first paper “Design and Experimentation of Activities for CS1: A Competences Oriented Approach (unpacking the Informed Design Teaching and Learning Matrix)”, by Alejandro Adorjan and Inés Friss de Kereki, presents their experience in trying to lower dropout rates and engage students to achieve better results in CS1. The strategy that they present is based on designing several activities using a competences oriented approach. In summary the paper describes the use of a framework in order to create pedagogical activities for the CS1 course. They propose to extend that framework with competences oriented activities. Results show that the inclusion of those activities seems to be helpful for students taking the course for the first time.

The second paper is “Towards a Model for the Development and Assessment of Competences through Formative Projects” by Sergio Cardona, Jeimy Velez and Sergio Tobón. The competence-based formation model has oriented educational policies in different countries during the last decades, and the socio-formative approach uses the methodology of the formative projects by means of an articulated set of pedagogical strategies that are used along the time to solve the problems of the context. This paper presents a model for competences development and assessment using formative projects

as part of a technological architecture to personalize the students' educational experience through a virtual learning environment. The model is structured considering the pedagogical guidelines of the University Corporation CIFE, in Mexico. Finally, a case study is presented to validate the proposed model with formation methodology in a virtual course in the CIFE.

The third paper is "Understanding Game Playing Preferences", by Cecilia Curlango, Jorge Ibarra, Gloria Chávez, María González, Marcela Rodríguez and Linda Arredondo. This paper presents the results of a study made with university students to determine the types of video games that they play, the platforms that they use to play, and what motivates them to play or stop playing games. The study results distinguish among genders in order to be able to design appropriate teaching strategies that appeal to both genders. This work was done as part of a larger study that focuses in attracting and retaining students to the computer engineering program.

The fourth paper is "Curriculum Integration by Projects: Opportunities and Constraints, A Case Study in Systems Engineering" by Sonia Mora and Mayela Coto. The Universidad Nacional (Costa Rica) is making significant efforts to improve the professional performance of graduates according to the needs of the society and the industry. In particular, the School of Informatics has been exploring the opportunities to implement, through the use of a pedagogy strategy oriented to problems and projects, a curricular integration between diverse areas of knowledge in the curriculum. From this perspective, this paper presents an initial exploratory study that was carried out, with the aim of integrating the areas of programming, databases and systems engineering. The findings show several limitations, such as mismatches between the course contents, lack of faculty commitment to collaborative work and student resistance. They also show the need of establishing strategies to create, from the early years of the curriculum, the necessary conditions to promote a positive attitude towards curricular integration processes and therefore overcome, at least partially, the identified limitations.

The fifth paper is "Supervised Internships and their Lessons: Challenges and Experiences with Teaching Degree in Computer Science in Brazilian Scenario" by Pasqueline Scaico and Thaíse Costa. In Teaching Degree courses in Brazil, the internship intends to complement the student's graduation process, considering this field of work as an object of investigation and critical reflection on the environment which is around it. However, when it is related to Teaching Degree in Computer Science which forms educators to this area, some difficulties preclude the achievement of the internship in its fullness due to the absence of educational policies which may establish the performance of these teachers. Despite the incentive to actions, which involve the teaching of Computer Science in basic education in Brazil, Computer Science does not make part of any curriculum in schools. Trying to encourage this dialogue, this paper presents part of the scenario of Computer Science education and of the internship's activities in Teaching Degree courses, showing its organizational structure and its directions of activities that provide experiences with teaching. The research also represents the challenges and the lessons learned while conducting internship disciplines in a specific course.

The sixth selected paper is “A Detailed Study of the Computer Science Degree at the Central University of Venezuela: Towards a New Curriculum Design” by Maria E. Villapol, Zenaida Castillo, Alecia E. Acosta, Marco Gómez, Adrian Bottini, Rhadamés Carmona, Harun Juhasz and Carlos Acosta. The Central University of Venezuela, as part of its efforts for adapting its academic offer to national and international needs, is conducting a project to review, evaluate and modify the Computer Science curriculum, in order to form the professional required by the country. The paper presents the results of the first stage of the project: an assessment of the Computer Science curriculum based on the use of various data collection instruments used to determine the professor, student and graduates perception of the program, as well as deficiencies and potential of the graduates, according to the companies and organizations that hire them. The results show that there exist a gap between the perception of the professors about the program and the opinion of the employers.

We are very grateful to all authors for their participation and patience in preparing and correcting their papers. A special recognition is given to all members of the CIESC 2013 Program Committee for their excellent and devoted work in reviewing the papers. We also would like to thank José Aguilar, chair of the CLEI Program Committee, for his support during the preparation of this issue.

It is our hope, as guest editors of this special issue, that this excellent collection of papers will be a valuable resource to all CLEI EJ readers.

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