

## Preface

The Third Regional Consortium for Computing Sciences and Foundations, RCCS 2018, is happy to include the Seventh SPIDTEC<sup>2</sup> (Permanent Seminar for Research and Spread of Emerging Technologies in Computing Sciences, for its initials in Spanish), as its close partner. This volume includes the works presented there, held on November 08–09, 2018 at the Institute for Engineering and Technology, IIT-UACJ, Chihuahua, Mexico. And this year we have focused our volume to include particular topics on deep learning, together with broader ones, Computer Science and Artificial Intelligence.

There were fourteen submissions and two invited proposal papers and one abstract. Each submission has been reviewed by at least three, and on the average 3.5, program committee members, carefully evaluating based on regional topics, originality, significance, clarity and scientific-technical rigor reported. We had 25 reviews in total. The Committee decided to accept five papers, giving an acceptance rate of 0.3. see Figure 1.

### Reviewing

reviews for a paper	number of papers
3	7
4	1

### Statistics by Topic

topic	submissions	accepted	acceptance rate	PC members
Mathematics of computing	2	1	0.50	4
Information systems	2	2	1.00	3
Computational medicine and healthcare	3	1	0.33	-
Computing methodologies	4	4	1.00	2

### Statistics by Country

country	authors	submitted	accepted	acceptance rate	PC members
Brazil	-	-	-	-	1
Denmark	-	-	-	-	1
France	-	-	-	-	1
Mexico	15	7.00	4.00	0.57	17
Spain	-	-	-	-	1
United States	2	1.00	1.00	1.00	1

Fig. 1. RCCS+SPIDTEC<sup>2</sup> Statistics.

This year we were pleased to host a keynote speaker: Prof.Dr. Gustavo Olague, from CICESE, Ensenada, Mexico. Prof. Gustavo Olague belongs to the Department of Computer Science, at the *Centro de Investigación Científica y de Educación Superior de Ensenada*, CICESE, Baja California, in Mexico, and he is a member of Researcher National System, SNI, Mexico. He gave a topic, with the following title “Programming of artificial brains for the vision of humanoid robots”.

Besides the two keynote addresses, we had a two-day special workshop from Prof. Olague. Its title was “Evolutionary Computer Vision,” out of his recent book.

This year we also had two prizes. The Best Student Paper Award and The Best Student Talk Award. Fernando Zapata Barron and Victor Manuel Mendoza Guzman were the two respective winners. The prizes are awarded to those works whose first author is a student, and whose presenter is a student, respectively. Both Zapata Barron and Mendoza Guzman are students in the Electrical Engineering master’s program at the Institute for Engineering and Technology, IIT-UACJ, Mexico. Congratulations!

One of the aims for the Regional Consortium is to identify areas of most demand and impact in the region Juarez (MX)-El Paso (TX)-Las Cruces (NM), in particular on computer sciences, mathematics and artificial intelligence. Once identified, regional needs can be exploited for the mid and long terms. That can be a foundation for forthcoming academic and industrial infrastructure.

The purpose of the Consortium is both social and economic so that both academy and industry can get benefit. It can be summarized as follows:

- to promote the betterment of mathematics and computer-oriented curricula in two- to four-year colleges and universities;
- to improve the use of mathematics and computing as an educational resource for all disciplines;
- to encompass regional constituencies devoted to this purpose; and
- to promote an international liaison among local, regional organizations also devoted to this purpose.

Predominantly these colleges and universities are oriented toward research and development. The Consortium holds meetings in conjunction with other mathematics and computing education organizations, on its own, sponsors sessions and tracks at such meetings. They are held at the University of Juarez, and some other colleges and universities in the region.

The topics of interest in this region have been classified and not limited to the following:

**Foundation for Computing Systems:** Both logic, mathematics and theory of computing for intelligent systems, which may include:

- Formal methods
- Reasoning under uncertainty
- Logic programming and non-monotonic reasoning
- Knowledge representation

- Automated reasoning
- Non-classical logics
- Artificial Intelligence
- Agent and intelligent systems
- Cognitive systems
- Natural language processing

**Implementation of computing systems:** for innovating emerging R&D problems systems, which may include:

- System descriptions, comparisons, assessments
- Algorithms and novel techniques for efficient evaluation
- Image processing, reconstruction, and restoration
- Embedded Systems
- Benchmarks

**Applications of Computing Systems:** in the domain of intelligent systems, which may include:

- Digital security
- Distributed systems
- Novel software engineering techniques and formalization

**Novel applications in Artificial Intelligence:** Applications that can solve problems in the region, which may include:

- Representations and ontologies for planning and scheduling
- Cloud computing and Big Data
- Integration of several computing paradigms
- Use of AI in the formalization of Commonsense Reasoning
- Languages and algorithms in diagnosis
- Knowledge-based dialog management
- Reasoning for adaptive systems
- Data integration and exchange systems
- Software engineering and model checking
- Applications to linguistics, psychology and other sciences
- Systems of systems
- Constraint-based planning or scheduling and control techniques
- Collaborative planning or scheduling
- Constraint-preference propagation techniques
- Planning or scheduling under uncertainty

In the region, there are research groups interested in these topics. As a result, this joint consortium is designed to promote cooperation among practitioners and researchers across disciplines who are interested in formal areas of Computer Science, AI and Software Development. The joint efforts of the workshop and consortium were aimed to:

- present innovative theoretical work and original applications of the formal areas of software development and knowledge engineering;
- exchange ideas and to facilitate interaction between researchers of the formal areas of software development and knowledge engineering;

- discuss significant recent achievements in theory and automation based on formal areas of software development and knowledge engineering;
- present critical short- and long-term goals for formal areas of software development and knowledge engineering;
- to provide a forum for students to present their current research in formal areas of software development and knowledge engineering and receive feedback from other students and researchers.

Students and researchers provided means to explore ways in which their research may contribute to the identification and addressing of problems of common interest in the region. We thank local research groups; the Autonomous University of Juarez, UACJ, in particular, the Multidisciplinary Division, CU; the Institute for Engineering and Technology, IIT; the Mexican Council of Science and Technology, CONACYT; The Mexican Ministry for Public Education, SEP; the Organizing and Scientific Committees for their support. Last but not least, we much appreciate the local committee and staff for hosting and supporting our joint consortium and workshop in Juarez. We are also grateful to the EasyChair team at the University of Manchester for their support.

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