Preface

The Second Regional Consortium for Computing Sciences and Foundations, RCCS 2017, is happy to include the Fifth SPIDTEC2 (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 09–10, 2017 at the Multidisciplinary Division, CU-UACJ, Chihuahua, Mexico. And this year we have focused our volume to include particular topics on logic, completeness, and consistency, together with broader ones, Computer Science and Artificial Intelligence.

There were fourteen submissions and two invited papers. Each submission has been reviewed by at least 2, and on the average 2.1, program committee members, carefully evaluating based on regional topics, originality, significance, clarity and scientific-technical rigor reported. We had 29 reviews in total. After two rounds, the Committee decided to accept seven papers, giving an acceptance rate of 0.5. The submissions include two invited papers, whose topics lead up to a particular exploration on mathematical logic, consistency and completeness.

This year we were pleased to host two keynote speakers: Prof. Humberto Sossa-Azuela and Prof. Manuel A. Ramos-Murillo. Prof. Sossa-Azuela belongs to the Center for Computing Research, CIC, at the National Polytechnic Institute, IPN, in Mexico City, and he is a member of Researcher National System, SNI, Mexico. He gave an interesting topic, with the following title "IA + IoT = Transportación Eficiente" (AI + IoT = Efficient Transportation). On the other hand, Prof. Ramos-Murillo belongs to the Department of Physics and Mathematics, at the University of Juarez, and he works at different physics laboratories in New Mexico and Chihuahua. He is also a member of the Researcher National System, SNI, Mexico. He lectured an exciting topic, entitled "Computational Catalysis: From Theory to Industrial Applications."

Besides the two keynote addresses, we had a two-day special workshop from Prof. Sossa-Azuela. Its title was "Introduction to Artificial Neural Networks and Associative Memories, with Applications," from its title in Spanish.

This year we also had three prizes. The Best Student Paper Award and The Best Student Talk Award. In addition to that, we had the Best Student Poster Award. Hugo A. González-Herrera got the latter, while Edgar E. Martínez-García won the first two mentioned. González-Herrera is a student in the Software Engineering major at CU-UACJ, and Martínez-García in the Mathematics one 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 social and economic, so that both academy and industry can 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 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;
- 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.

This year we have started the project. 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 if 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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