Editorial

It is a pleasure to present this Thematic Issue of *Computación y Sistemas* on Advances in Logic-based Methods for Intelligent Systems. Logic-based methods are playing an important role on the new generation of intelligent systems. Formal methods for capturing different sort of data are a premier requirement for implementing intelligent systems in different real applications, e.g., medical diagnosis, provision of services in smart-environments, etc. In this setting, logic-based theories have been shown to be sound theories for modelling and implementing intelligent systems.

Nowadays Brazilian researches on the intersection between logic and intelligent systems provide many interesting new methods in multi-agent, concurrent and probabilistic systems. From the development of new logics with native support to concurrency through extensions of modal and linear logics to the implementation in proof assistants of code validators and probabilistic and exact SAT solvers.

The development of linguistic tools based on logic intersects with Mexican logic research. Mexican logic research contributions are also diverse. From emotional and psychological modelling and analysis to fuzzified systems in industry. From the general perspective, we observe a clear consolidation of the research groups in the field of logic-based methods for intelligent systems in Latin America. Many of these Latin American research groups are international research leaders in their scope of research.

This issue contains 14 papers, among them the first six papers present to the readers advances in Logic-based Methods for Intelligent Systems. From these six papers, three of them were accepted in a particular call for papers in the scope of logic-based methods.

We open this issue with an invited paper from Mario Benevides and Isaque Maçalam Saab Lima who present an extension of Dynamic Epistemic Logic to deal with Boolean assignment to propositions. They also present a sound and complete axiomatization.

Everardo Barcenas, Edgard Benítez-Guerrero, Antonio Benitez, Jorge de La Calleja and María Auxilio Medina Nieto present a sound and complete algorithm to find a route on the behavior of an agent based on modal logics.

Oscar Chávez-Bosquez, Pilar Pozos Parra and Jianbing Ma discuss the merging of beliefs and information in theories. They also present a software to apply the proposed methodology.

Guillermo De Ita, Fernando Zacarías-Flóres and Alma Delia García-García also work on belief revision, but focused in models to conjunctive normal forms.

José A. Hernández-Servín, J. Raymundo Marcial-Romero and Guillermo De Ita Luna developed a low-exponential algorithm to count the number of edge cover in simple graphs. They discuss the soundness of the algorithm and present a recurrence relation to compute its upper bound.

Mauricio Osorio, Juan Díaz and Alejandro Santoyo present a novel method

for computing semi-stable semantics using integer programming with experimental results for comparison with other methods.

Aldo Rueda, Miguel Toledo, Fernando Rueda and Rene Rangel describe an Eulerian/Lagrangian two-phase model for wet steam. A series of experimental results is presented.

José D. López-Cabrera and Juan V. Lorenzo-Ginori explore morphological features in supervised classification. Moreover, they present a comparative analysis of different supervised learning algorithms oriented to the classification of reconstructed neurons.

Martha Dunia Delgado Dapena, Arloys Macías Rojas, Danay Larrosa Uribazo, Sandra Verona Marcos, and Perla Beatriz Fernández Oliva present a model for the generation of software early tests. It is highlighted that the suggested model contains a collection of search-based tools, which support the generation of functional test cases.

Sandra Dinora Orantes Jiménez, Graciela Vázquez Álvarez, and Ricardo Tejeida Padilla develop a data analysis in the hotelier sector. This data analysis allow the authors to come up with valuable findings in customer relationship management.

Jose P. Perez, Joel Perez, Angel Flores and Martha S. Lopez de la Fuente present a controller design for trajectory tracking determined by a general complex dynamical network.

Walid Mahdi, Seyyid Ahmed Medjahed and Mohammed Ouali discuss and analyzes the efficiency of different cooling schedules, in the simulated annealing approach to optimization in the task of stereo matching in image processing. The implementation of the SA variants along with the cooling schedules always converges towards a strong minimum. They relate that the disparity maps are almost identical and the final energy is almost the same.

Raymundo Domínguez, Manuel Romero-Salcedo and Luis G. Velasquillo-Martínez present a very interesting report on the interaction between image segmentation and pattern recognition. They show how a new algorithm for segmentation when applied in color images with seismic information helps the detection by pattern recognition of certain particular patterns that correspond to hidden geobodies.

Corinne Amel Zayan, Leila Ghorbel, Ikram Amous, Manel Mezghani, André Péninou and Florence Sèdes propose to reconstruct user's profile by considering, additionally, semantic relationships between interests. The interests are of a distributed character and the notion of temperature is used in association with learning algorithms.

The papers in here presented are cutting-edge works on Logic-based Methods for Intelligent Systems; moreover, different theoretical and practical works in the field of computer science. This exceptional content can broadly help researchers and point new research directions.

The editors would like to thank all authors for their contributions and are also very grateful to the reviewers for their work during the review phase and for providing excellent feedback to the authors.

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Edward Hermann Haeusler
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Guest editors