

# Preface

The present double issue (Numbers 1–2, Vol. 19, 2016) of the Romanian Journal of Information Science and Technology (ROMJIST) is devoted to the 25th anniversary of the Section for Information Science and Technology, which was created by the Romanian Academy in 1991 and started its activity in January 1992.

Thanks to the initiative of the President of this Section, Academician FLORIN GHEORGHE FILIP, the members put forward a number of papers representative for the recent scientific work of them and their co-workers. A number of papers produced by other teams have been invited. A brief review of papers follows. Our colleagues are mentioned as “members of the Romanian Academy”. The special issue starts with two papers related to “membrane-computing” (or the so-called “P systems”) a new field developed by GHEORGHE PĂUN, member of the Romanian Academy.

The first paper is authored by GHEORGHE PĂUN himself and a few colleagues from China, and is dealing with new research directions in numerical P systems and in spiking neural P systems.

The second paper belongs to a team of Italian researchers and it is devoted to “tissue P systems”, described as “biologically” computing devices inspired by the communication between cells and tissues.

The next paper with first author DAN CRISTEA, member of the Romanian Academy, is devoted to the representation of temporality in free writings, in the perspective of developing a technique able to reproduce on a computer the human reader ability to perceive the time perspective in free texts.

GHEORGHE TECUCI, member of the Romanian Academy and his USA coworkers present a computational theory of evidence-based reasoning for cognitive assistants, that able to learn complex problem solving expertise directly from human experts, to assists their users with a wide range of tasks.

FLORIN GHEORGHE FILIP, member of the Romanian Academy, is co-authoring a paper devoted to data-driven “Decision support systems” (DSS) and more specifically to the implementation of particular DSS for the analysis of labor market.

DAN TUFIȘ, member of the Romanian Academy, is the author of a review paper dealing with part-of-speech tagging of natural languages and various ways to mitigate the inevitable data sparseness (words or morpho-syntactic labels not seen in the training data).

IOAN DUMITRACHE, member of the Romanian Academy, is the first author of an article dealing with evolutionary networks, more specifically, with a new hybrid methodology using a Generalized Neuron with a Genetic Algorithm. A practical application, the estimation for battery state of charge, is presented. A

comparison with the result obtained by using the conventional artificial neural networks is done.

HORIA-NICOLAI TEODORESCU, member of the Romanian Academy, and a German co-worker are presenting their work related to resilience in networks and information systems, concentrating on the “resilience index” previously introduced. The main contributions are related to the properties of this index, with a particular emphasis on the recovery phase.

MIHAIL VOICU, member of the Romanian Academy, is co-authoring two papers on qualitative analysis of switching linear and respectively positive systems.

GHEORGHE M. ȘTEFAN, member of the Romanian Academy, and his co-authors from Romania and USA address microelectronics, more specifically, to hybrid processing, *i.e.*, using both CPU (Central Processing Unit) and FPGA (Field Programmable Gate Array). The authors are developing a programmable accelerator, using a selection from the predesigned structures for FPGA, and programming of the resulting parallel computing structure.

The next paper is related to the generalization in 3D of the traditional Smith chart well-known to communication engineers (DAN DASCĂLU, member of the Romanian Academy, is one of the co-authors).

MIHAI MIHĂILĂ, member of the Romanian Academy, is the author of an article devoted to  $1/f$  noise in solids, in an attempt of understanding the microscopic origin of this basic fluctuation phenomenon.

The last paper, an invited contribution from Republic of Moldova, discusses the use of the information technology in medicine, more specifically, in mapping the biological tissue in therapeutic hypothermia (*i.e.*, cooling damaged areas of the patient body, in order to reduce the risk of ischemic tissue injury).

As may be seen, this collection of papers provides a broad panorama of trends in information technology and involves prominent Romanian researchers and their colleagues.

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Editor-in Chief