

EDITORIAL

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Until today, computer science has managed to conceptualize and to use successfully the representation and automated transformation of the information. Their technological implementation is one of the fundamental pillars of the present computer science revolution in digital processing of the information. In this volume of *Computación y Sistemas* we have included five research papers and an extended summary of a doctoral thesis that cover diverse aspects of theory and practice of computer science.

The first three papers deal with digital signal processing and instrumentation. De la Rosa-Vargas in the paper titled “Convergence of Minimum-Entropy Robust Estimators: Applications in DSP and Instrumentation” approaches the problem of robust estimators, an important issue since the real systems are usually exposed to continuous disturbances of unknown nature. The author describes several minimum-entropy estimators for linear and not-linear systems.

In the paper “A comparative evaluation of four algorithms for numeric solution of the deconvolution on unidimensional systems” by De la Rosa-Vargas, Miramontes de León, García-Domínguez, Esquivel, and Villa-Hernández the problems of deconvolution or restoration of n-dimensional signals are studied. The comparison of the deconvolution algorithm developed by the authors with the other three classic algorithms for onedimensional deconvolution of signals shows the advantages of the proposed solution.

Many applications in digital signal processing require a digital filter with a narrowband and sharp transition band. The paper “An Algorithm for Computing Design Parameters of IFIR Filters with Low Complexity” by Diaz-Carmona, Jovanovic-Dolecek, and Padilla-Medina describes an algorithm to calculate the design parameters of interpolated FIR (IFIR) digital filters with a low complexity. The proposed algorithm calculates the maximum IFIR filter interpolation factor and the minimum number of stages of the sharpened cascaded Recursive-Running Sum filter in such a way that the overall structure meets the desired specifications with the minimum complexity.

The introduction of another information technology, the Internet, has added to the universe of the computer science the important aspect of information communication, where data compression plays very important role. The paper by Zuñiga-Grajeda, Feregrino-Uribe and Cumplido-Parra “Parallel Hardware/Software Architecture for the BWT and LZ77 Lossless Data Compression Algorithms” proposes the combination of two different data compression schemes for data transmission in computer networks. The design of a hardware/software architecture to exploit parallelism increasing execution speed while keeping flexibility is described.

Verification of concurrent systems is a complex task that requires powerful models and efficient analysis techniques. Model checking is one of the most popular verification techniques of concurrent systems. The paper “Checking untimed and timed linear properties of the Interval Timed Colored Petri Net model” by Boucheneb proposes an approach that allows contracting generally infinite state space into a graph that captures all linear properties of the model. In this case, untimed linear properties of the model can be verified on the graph using the standard linear model checking techniques, while to verify timed linear properties, an algorithm computing minimal and maximal path times is developed. This model can simulate other timed colored Petri nets and allows describing large and complex real-time systems.

Finally, Rodriguez presents the summary of her doctoral thesis “Autonomous Agents in Collaborative Ubiquitous Computing Environments”. The agent technology is a promising and rapidly developing information technology. This thesis describes a *middleware* called SALSA, which facilitates the management of the complexities associated with the development of ubiquitous computing systems by means of the use of autonomous agents. Agents enable ubiquitous computing technology better respond to users’ particular conditions and demands.

The continuous advances of the computer science, like those reported in this issue, allow day by day the development of new information technologies. I would like to take this opportunity and to invite potential authors to send their works to the journal *Computación y Sistemas* and this way to contribute to the scientific and technological development of the information society.

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