

Computación y Sistemas continuous with its goal to publish papers of quality, comparable to that of other published papers in similar journals. This time we publish the works of eight research groups and PhD thesis.

In the first paper, Mónico Linares y Mariano Aguirre present two new high-speed low-power 1-bit full-adder cells using an alternative logic structure, and the logic styles DPL and SR-CPL. The adders were designed using electrical parameters of a $0.35\mu\text{m}$ Complementary Metal-Oxide-Semiconductor (CMOS) process, and were compared with various adders published previously, with regards of power-delay product. To validate the performance simulation results of one of the proposed adders, an 8-bits pipelined multiplier was fabricated using a $0.35\mu\text{m}$ CMOS technology, and it showed to provide superior performance.

In the second paper, Juan Pablo Soto and his colleagues present a two layer multi-agent architecture designed to support communities of practice in organizations which are concerned about knowledge sharing. The main goal of this proposal is, therefore to facilitate knowledge exchange in organizations whose employees are organized into communities.

In the third paper, Jesús Ezequiel Molinar Solís and his colleagues describe a low-complexity current-mode Winner-Take-All circuit (WTA) of $O(n)$ complexity with logical outputs. The proposed approach employs a Quasi-FG Inverter as the key element for current integration and the computing of the winning cell. The design was implemented in a double-poly, three metal layers, $0.5\mu\text{m}$ CMOS technology. The circuit exhibits a good accuracy-speed tradeoff when compared to other reported WTA architectures.

In the fourth paper, Hayde Peregrina and Iván R. Terol introduce a method focused on images with different luminance conditions. The proposed method is based on morphological filters by reconstruction and rational operations, which together, allow a uniform contrast enhancement. Furthermore, due to the properties of these morphological transformations, the creation of new elements on image is avoided. The processing was made on luminance values in the $u^*v^*Y^*$ color space, which permits to keep the chrominance and to avoid the creation of new colors. As a result of the previous considerations, the proposed method keeps the natural color appearance of the image.

In the fifth paper, Juan C. Tudón and his colleagues present a comparison between the Dynamic Principal Component Analysis (DPCA) method and a set of Diagnostic Observers (DO) under the same experimental data from a shell and tube industrial heat exchanger. The comparative analysis shows the detection properties of both methods when sensors and/or actuators fail online, including scenarios with multiple faults. Similar metrics are defined for both methods: robustness, quick detection, isolability capacity, explanation facility, false alarm rates and multiple faults identifiability. Experimental results show the principal advantages and disadvantages of both methods. DO showed quicker detection for sensor and actuator faults with lower false alarm rate. Also, DO can isolate multiple faults. DPCA required a minor training effort; however, it cannot identify two or more sequential faults.

In the sixth paper, Nohe R. Cazarez and his colleagues extend the Fuzzy Lyapunov Synthesis method for the design of type-1 fuzzy logic controllers for an output regulation problem for a servomechanism with backlash. The problem in question is to design a feedback controller so as to obtain the closed-loop system in which all trajectories are bounded and the load of the driver is regulated to a desired position while also attenuating the influence of external disturbances. Provided the servomotor position is the only measurement available for feedback, the proposed extension is far from trivial because of non-minimum phase properties of the system. Performance issues of the fuzzy regulator constructed are illustrated in an experimental study.

In the seven paper, Beatriz Bernábe and his colleagues describe a factorial statistical study that compares the quality of solutions produced by two heuristics: Simulated Annealing (SA) and Variable Neighborhood Search (VNS). These methods are used to solve the Geographic Clustering Problem (GCP), and the quality of the solutions produced for specific times has been compared. With the goal of comparing the quality of the solutions, where both heuristics participate in an impartial evaluation, time has been the only common element considered for VNS and SA.

In the eighth paper, Rocío Lizarraga and his colleagues propose an approach to determine both, texture periodicity and texel size. Their method is based on the entropy, a texture measure computed from the Sum and Difference Histograms. The entropy value is sensitive to the parameters in such histograms and takes its lowest value when the parameters match with texel size or its integer multiples, in any specific direction. They show the performance of our method by texture synthesis, tiling a sample of the detected size and measuring the similarity between the original image and the synthesized one, showing good results with regular textures and texels with different shapes, being useful for practical applications as well because of its simple implementation.

Finally, in the ninth paper Rolando Quintero presents a resume of his doctoral thesis. In this thesis, the author presents a methodology for making semantic descriptions of digital elevation models. The methodology is build up of three stages: conceptualization, to define the conceptual framework of the description; synthesis, to process "raw" spatial data and to obtain the spatial objects contained in data; and description, to generate the representation of results from the synthesis according to the conceptual framework.

As always, I take the opportunity to thank the authors for their time and effort on preparing their works, to the reviewers for their professionalism to do the tedious but important reviewing work of the papers to them assigned. I also thank all the editorial body of the journal so that this number is published.

Juan Humberto Sossa Azuela
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