

Title: Development and Implementation Quantum Dot Cellular Automata (QCA) of Intelligent Systems equipped with real-time inference of oil well water quality parameters

Dr.Sc. Ing. Antonio Faustino Muñoz Moner Ph.D.
Autonomous University of Bucaramanga, Santander Colombia

This work shows a technology of artificial cloning for industrial nanoautomata development UNAB supported by research with Nano Bio Integrated System Group (NaBIS) Technical University of Denmark DTU. The neural networks allow develop to the intelligent structure of the micro- nanoautomata, the learning starting from real devices, the genetic mapping allows the generation of codes for the cloning procedure, for it the mutation processes, crossing, reproduction and investment are used; the intelligent system based on micro-nanoinstrumentation assisted by functional replication Quantum Dot Cellular Automata and real-time inference of water quality parameters in oil wells associated with automatic monitoring and control of water quality in oil wells characterized in evolutionary circuits. The answer is sought through the development of an artificial cloning methodology based on stem cells and intelligent systems for the design of micro- and nano-automata that allows replicating functions through an imitation reproduced by generations of chromosomes, representations of algorithm configurations evolutionary, clustering in fuzzy sets and distributed control with deep neural networks of the initial population, ordered according to a multi-objective function, in this way with the circuit model evolutionary can be the basic structures for the design of stem cells as a solution for the characterization of the evolutionary circuits of micro- and nanoautomata Quantum Dot Cellular Automata where the mutation switching is replaced, as a result of the change in the circuit of the logic blocks configurable by logical blocks mutable .

Biography

More than 25 years of experience in the Scientific, Investigative and Pedagogical Directorate. Investigations carried out. He has directed International Projects in topics Automation of Industrial Plants, Advanced Nanotechnology .Nanobinstrumentation, Modernization of Instrumentation and Control in Industrial Plants. Modeling and Simulation of Industrial Systems of Robotics. Intelligent Control (Blurred Control, Predictive Control, Control by Neural Networks, Control with Genetic Algorithms and Artificial Cloning) Participated and Directed Projects in the previous topics with the firms Moa Nickel S.A (Canadian-Cuban Corporation). Outokumpu from Finland. Siemens from Germany. Codelco of Chile. Framework Program of the European Union. Events and Publications: Participated in more than 120 National and

International Events. It owns more than 108 scientific-technical articles in prestigious international journals. Published 18 monographs on research topics.

Presenting author details
Full name: Antonio Faustino Muñoz Moner
Contact number: (57) (7) 643 6111/643 6261
Email: amunozm@unab.edu.co
Session name/ number: Nanodevice and nanosensors
Category: Oral presentation