1. Record Nr.   UNINA9910484751003321

   Titolo   Evolvable systems : from biology to hardware : 6th international conference, ICES 2005, Sitges, Spain, September 12-14, 2005 : proceedings / / J. Manuel Moreno, Jordi Madrenas, Jordi Cosp (eds.)

   Pubbl/distr/stampa   Berlin ; ; New York, : Springer, c2005

   ISBN   3-540-28737-X

   Edizione   [1st ed. 2005.]

   Descrizione fisica   1 online resource (XI, 227 p.)

   Collana   Lecture notes in computer science, , 0302-9743 ; ; 3637

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   Disciplina   005.1

   Soggetti   Evolutionary programming (Computer science)
                                Evolutionary computation
                                Digital integrated circuits - Design and construction

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Note generali   Bibliographic Level Mode of Issuance: Monograph

   Nota di bibliografia   Includes bibliographical references and index.

   Nota di contenuto   Fault Tolerance and Recovery -- An Adaptive Self-tolerant Algorithm for Hardware Immune System -- Consensus-Based Evaluation for Fault Isolation and On-line Evolutionary Regeneration -- Hardware Fault-Tolerance Within the POEtic System -- Evolvable Hardware System at Extreme Low Temperatures -- Platforms for Evolving Digital Systems -- Intrinsic Evolution of Sorting Networks: A Novel Complete Hardware Implementation for FPGAs -- Evolving Hardware by Dynamically Reconfiguring Xilinx FPGAs -- A Flexible On-Chip Evolution System Implemented on a Xilinx Virtex-II Pro Device -- An Evolvable Image Filter: Experimental Evaluation of a Complete Hardware Implementation in FPGA -- Evolution of Analog Circuits -- Operational Amplifiers: An Example for Multi-objective Optimization on an Analog Evolvable Hardware Platform -- Intrinsic Evolution of Controllable Oscillators in FPTA-2 -- Evolutionary Robotics -- The Role of Non-linearity for Evolved Multifunctional Robot Behavior -- An On-the-fly Evolutionary Algorithm for Robot Motion Planning -- Evolutionary Hardware Design Methodologies -- Improving the Evolvability of Digital Multipliers Using Embedded Cartesian Genetic Programming and Product Reduction --

Benefits of Employing an Implicit Context Representation on Hardware Geometry of CGP -- Evolution In Materio: Investigating the Stability of Robot Controllers Evolved in Liquid Crystal -- Bio-inspired Architectures -- Hardware Implementation of 3D Self-replication -- POEtic: A Prototyping Platform for Bio-inspired Hardware -- Implementation of Biologically Plausible Spiking Neural Networks Models on the POEtic Tissue -- Applications -- Adaptive Waveform Control in a Data Transceiver for Multi-speed IEEE1394 and USB Communication -- Evolution, Re-evolution, and Prototype of an X-Band Antenna for NASA's Space Technology 5 Mission -- Hardware Platforms for MEMS Gyroscope Tuning Based on Evolutionary Computation Using Open-Loop and Closed-Loop Frequency Response.

Sommario/riassunto	The flying machines proposed by Leonardo da Vinci in the fifteenth century, the se- reproducing automata theory proposed by John von Neumann in the middle of the twentieth century and the current possibility of designing electronic and mechanical systems using evolutionary principles are all examples of the efforts made by humans to explore the mechanisms present in biological systems that permit them to tackle complex tasks. These initiatives have recently given rise to the emergent field of b- inspired systems and evolvable hardware. The inaugural workshop, Towards Evolvable Hardware, took place in Lausanne in October 1995, followed by the successive events of the International Conference on Evolvable Systems: From Biology to Hardware, held in Tsukuba (Japan) in October 1996, in Lausanne (Switzerland) in September 1998, in Edinburgh (UK) in April 2000, in Tokyo (Japan) in October 2001, and in Trondheim (Norway) in March 2003. Following the success of these past events the sixth international conference was aimed at presenting the latest developments in the field, bringing together researchers who use biologically inspired concepts to implement real systems in artificial intelligence, artificial life, robotics, VLSI design, and related domains. The sixth conference consolidated this biennial event as a reference meeting for the community involved in bio-inspired systems research. All the papers received were reviewed by at least three independent reviewers, thus guaranteeing a high-quality bundle for ICES 2005.