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Titolo	Evolvable Systems: From Biology to Hardware : 8th International Conference, ICES 2008, Prague, Czech Republic, September 21-24, 2008, Proceedings / / edited by Gregory S. Hornby, Lukas Sekanina, Pauline C. Haddow
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Collana	Theoretical Computer Science and General Issues, , 2512-2029 ; ; 5216
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Soggetti	Software engineering Life sciences Computer programming Computer science Logic design Artificial intelligence Software Engineering Life Sciences Programming Techniques Theory of Computation Logic Design Artificial Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Evolution of Analog Circuits -- Unconstrained Evolution of Analogue Computational "QR" Circuit with Oscillating Length Representation -- ISCLEs: Importance Sampled Circuit Learning Ensembles for Trustworthy Analog Circuit Topology Synthesis -- Evolution of Digital Circuits -- A Comparison of Evolvable Hardware Architectures for Classification Tasks -- Hardware Acceleration of an Immune Network Inspired Evolutionary Algorithm for Medical Diagnosis -- A Stepwise Dimension Reduction Approach to Evolutionary Design of Relative Large

Combinational Logic Circuits -- Hardware-Software Codesign and Platforms for Adaptive Systems -- Evolutionary Graph Models with Dynamic Topologies on the Ubichip -- A Hardware-Software Design Framework for Distributed Cellular Computing -- Hardware/Software Co-synthesis of Distributed Embedded Systems Using Genetic Programming -- Self-Adaptive Networked Entities for Building Pervasive Computing Architectures -- Best Paper Award Competition -- Cellular Automata-Based Development of Combinational and Polymorphic Circuits: A Comparative Study -- Investigating the Suitability of FPAAs for Evolved Hardware Spiking Neural Networks -- The Segmental-Transmission-Line: Its Design and Prototype Evaluation -- On Evolutionary Synthesis of Linear Transforms in FPGA -- Evolutionary Robotics -- Towards Efficient Evolutionary Design of Autonomous Robots -- Indirect Online Evolution – A Conceptual Framework for Adaptation in Industrial Robotic Systems -- Development -- A Developmental Gene Regulation Network for Constructing Electronic Circuits -- Discovery and Investigation of Inherent Scalability in Developmental Genomes -- Learning General Solutions through Multiple Evaluations during Development -- Real-World Applications -- Evolving MEMS Resonator Designs for Fabrication.-Self-Reconfigurable Mixed-Signal Integrated Circuits Architecture Comprising a Field Programmable Analog Array and a General Purpose Genetic Algorithm IP Core -- Evolutionary Networking -- Proposal for LDPC Code Design System Using Multi-Objective Optimization and FPGA-Based Emulation -- Scalability of a Novel Shifting Balance Theory-Based Optimization Algorithm: A Comparative Study on a Cluster-Based Wireless Sensor Network -- Evolutionary Design of Fault Tolerant Collective Communications -- Evolvable Artificial Neural Networks -- A Cellular Structure for Online Routing of Digital Spiking Neuron Axons and Dendrites on FPGAs -- Bio-inspired Event Coded Configurable Analog Circuit Block -- Dynamics of Firing Patterns in Evolvable Hierarchically Organized Neural Networks -- Transistor-Level Circuit Evolution -- Evolving Variability-Tolerant CMOS Designs -- Transistor-Level Evolution of Digital Circuits Using a Special Circuit Simulator -- Extended Posters -- Optimised State Assignment for FSMs Using Quantum Inspired Evolutionary Algorithm -- Evolvable Hardware: A Tool for Reverse Engineering of Biological Systems -- Coevolution of Neuro-developmental Programs That Play Checkers -- Hippocampus-Inspired Spiking Neural Network on FPGA -- Fault-Tolerant Memory Design and Partitioning Issues in Embryonics -- The Input Pattern Order Problem: Evolution of Combinatorial and Sequential Circuits in Hardware -- Neural Development on the Ubichip by Means of Dynamic Routing Mechanisms -- Short Posters -- The Perplexus Programming Framework: Combining Bio-inspiration and Agent-Oriented Programming for the Simulation of Large Scale Complex Systems -- Quantum Bio-inspired Vision Model on System-on-a-Chip (SoC) -- Evolutionary Meta Compilation: Evolving Programs Using Real World Engineering Tools -- WaveguideSynthesis by Genetic Algorithms with Multiple Crossover -- Parallel Grammatical Evolution for Circuit Optimization -- Self-organization of Bio-inspired Integrated Circuits -- Artificial Creativity in Linguistics Using Evolvable Fuzzy Neural Networks.

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#### Sommario/riassunto

This book constitutes the refereed proceedings of the 8th International Conference on Evolvable Systems, ICES 2008, held in Prague, Czech Republic, in September 2008. The 28 revised full papers and 14 revised poster papers presented were carefully reviewed and selected from 52 submissions. The papers are organized in topical sections on evolution of analog circuits, evolution of digital circuits, hardware-software

codesign and platforms for adaptive systems, evolutionary robotics, development, real-world applications, evolutionary networking, evolvable artificial neural networks, and transistor-level circuit evolution.

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