

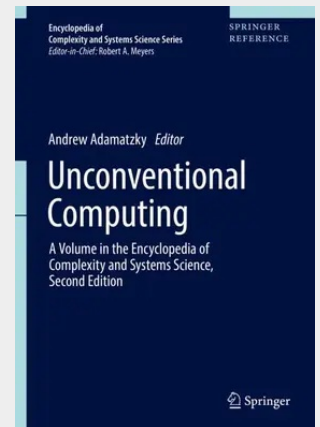
Unconventional Computing

A Volume in the Encyclopedia of Complexity and Systems Science, Second Edition

This volume of the Encyclopedia of Complexity and Systems Science, Second Edition, is a unique collection of concise overviews of state-of-art, theoretical and experimental findings, prepared by the world leaders in unconventional computing. Topics covered include bacterial computing, artificial chemistry, amorphous computing, computing with Solitons, evolution in materio, immune computing, mechanical computing, molecular automata, membrane computing, bio-inspired metaheuristics, reversible computing, sound and music computing, enzyme-based computing, structural machines, reservoir computing, infinity computing, biomolecular data structures, slime mold computing, nanocomputers, analog computers, DNA computing, novel hardware, thermodynamics of computation, and quantum and optical computing. Topics added to the second edition include: social algorithms, unconventional computational problems, enzyme-based computing, inductive Turing machines, reservoir computing, Grossone Infinity computing, slime mould computing, biomolecular data structures, parallelization of bio-inspired unconventional computing, and photonic computing.

Unconventional computing is a cross-breed of computer science, physics, mathematics, chemistry, electronic engineering, biology, materials science and nanotechnology. The aims are to uncover and exploit principles and mechanisms of information processing in, and functional properties of, physical, chemical and living systems, with the goal to develop efficient algorithms, design optimal architectures and manufacture working prototypes of future and emergent computing devices.

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