Hardware for Soft Computing and Soft Computing for Hardware

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Springer International Publishing Dez 2013, 2013. Buch. Condition: Neu. Neuware - Single and Multi-Objective Evolutionary Computation (MOEA), Genetic Algorithms (GAs), Artificial Neural Networks (ANNs), Fuzzy Controllers (FCs), Particle Swarm Optimization (PSO) and Ant colony Optimization (ACO) are becoming omnipresent in almost every intelligent system design. Unfortunately, the application of the majority of these techniques is complex and so requires a huge computational effort to yield useful and practical results. Therefore, dedicated hardware for evolutionary, neural and fuzzy computation is a key issue for designers. With the spread of reconfigurable hardware such as FPGAs, digital as well as analog hardware implementations of such computation become cost-effective. The idea behind this book is to offer a variety of hardware designs for soft computing techniques that can be embedded in any final product. Also, to introduce the successful application of soft computing technique to solve many hard problems encountered during the design of embedded hardware designs. Reconfigurable embedded designs for GAs, ANNs, FCs and PSO are presented and evaluated. Also, the application of quantum-based evolutionary computation and multi-objective evolutionary computation as well as ACO are applied to solve hard problems related to circuit synthesis, IP assignment, mapping and routing of applications on Network-On-Chip...

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