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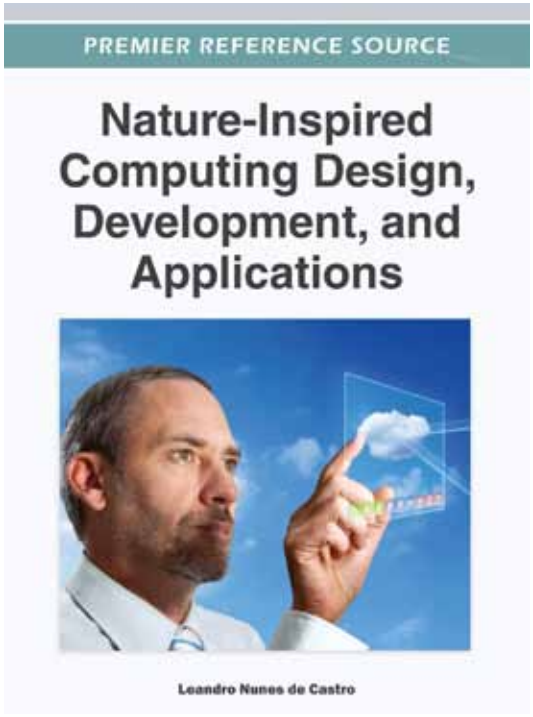

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Nature-Inspired Computing Design, Development, and Applications

Leandro Nunes de Castro (Mackenzie University, Brazil)

The observation of nature has been the inspiration for many materials, laws, and theories, as well as computational methods.

Nature-Inspired computing Design, Development, and Applications covers all the main areas of natural computing, from methods to computationally synthesized natural phenomena, to computing paradigms based on natural materials. This volume is comprised of ideas and research from nature to develop computational systems or materials to perform computation. Researchers, academic educators, and professionals will find a comprehensive view of all aspects of natural computing with emphasis on its main branches.

Topics Covered:

- Artificial life
- Artificial neural networks
- Cellular automata
- Computation Performing Materials
- Computational systems
- Fractal geometry
- Growth and developmental algorithms
- Molecular computing
- Natural Computing Methods
- Quantum computing

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal forclassroom use.

Leandro Nunes de Castro received a BSc degree in electrical engineering from the Federal University of Goias (Brazil, 1996) and MSc and PhD degrees in computer engineering from the State University of Campinas (Unicamp) (São Paulo, Brazil) in 1998 and 2001, respectively. He received a MBA (2007) in strategic business management from the Catholic University of Santos. He was a research associate with the Computing Laboratory at UKC (Canterbury, UK) from 2001 to 2002, a visiting lecturer at Unicamp from 2002 to 2003, a senior research fellow at the Wernher von Braun Center for Advanced Research from May to December 2004, and a visiting lecturer at the Universiti Technologi Malaysia (Johor, MY) in September 2005. In May 2003, he joined the Catholic University of Santos (UniSantos) as an assistant professor in computer science and established collaborations with the Federal University of Bahia (UFBA) and the Federal University of Minas Gerais (UFMG). He is currently an associate professor at the Mackenzie University. He has broad interest in all natural computing approaches with particular emphasis on biologically inspired computing including artificial immune systems, artificial neural networks, evolutionary algorithms, swarm intelligence, fractal geometry, and artificial life. He is the main author of *Artificial Immune Systems: A New Computational Intelligence Approach* published by Springer-Verlag (UK, 2002), one of the editors of *Recent Developments in Biologically Inspired Computing* published by Idea Group Inc. (USA, 2004), and the author of *Fundamentals of Natural Computing: Basic Concepts, Algorithms, and Applications* published by CRC Press LLC (June 2006). He has published over seventy-five conference papers, twenty journal papers and six book chapters mostly covering natural computing approaches. He has been a member of the IEEE Computational Intelligence Society since 1999, ICARIS (International Conference on Artificial Immune Systems) Steering Committee since 2003, the Brazilian Society for Automation (SBA) since 1998, and the Brazilian Computing Society (SBC) since 2006. In February 2007 he started a company on natural computing, named "NatComp – from Nature to Business", which he is the Director of Research, Development and Innovation (RDI).