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Altri autori (Persone)	VincenziniP. <1939-> GrazianiSalvatore
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Nota di contenuto

Mining Smartness from Nature; Committees; Preface; Table of Contents; CHAPTER 1: ALGORITHMS, MECHANISMS AND STRUCTURES IN NATURE AS INSPIRATION TO MIMICKING; Spider Silk as an Inspiration for Biomimicking; Approaches to the Construction of the Minimal Cell; Flight Control of an Insect; Investigating the Thrust Production of a Myliobatoid-Inspired Oscillating Wing; Deployable Structures in Plants; A Bat-Wing Aircraft Using the Smart Joint Mechanism; Analysis and Optimization-Based Synthesis of Compliant Mechanisms; CHAPTER 2: BIOMIMETIC MATERIALS; Fractals to Model Hierarchical Biomaterials New Fabrication Process of Nano-Composites by Biomimetic ApproachGecko Inspired Suit Could Have you Climbing the Wall; Effective Impregnation of SiO₂ Sol-Gel Solution in Pine Wood and Following Gel Localization in Free Cell Volume; CHAPTER 3: BIO-INSPIRED SENSORS AND ACTUATORS; Bioelectronic Detection Schemes for Biomedical and Environmental Sensing; Towards Biocompatible Sensing Devices: An IPMC Based Artificial Vestibular System; Double Layer Sensor Reproducing Perception Dynamics of Olfactory Cells; Determining the Binaural Signals in Bat Echolocation Generating Bio-Analogous Recognition of Artificial Materials - Sensors and Electronic Noses for OdoursA pH-Activated Biomimetic Actuator Derived from McKibben Artificial Muscle Structure; Mining Smartness from the Hydraulic System of Spiders: A Bioinspired Actuator for Advanced Applications; CHAPTER 4: BIOLOGICALLY INSPIRED SYSTEMS AND ROBOTICS; Towards In Vivo Nanomachines; Neuromimetic Robots Inspired by Insect Vision; CPG Control of a Tensegrity Morphing Structure for Biomimetic Applications ; Biorobots, Nonlinear Dynamics and Perception Anthropomorphic Talking Robot Based on Human Biomechanical StructureCyborg MAVs Using Power Harvesting and Behavioral Control Schemes; Multi-UUVs Team Line Formation Control by a Behaviour-Based Method with Fuzzy Logic Adapters; Fabrication and Evaluation of Biomimetic Jellyfish Robot Using IPMC; The Nano and Micromanipulators Based on Magnetic Bacterium; CHAPTER 5: BIOMIMETIC FLOW CONTROL IN AQUATIC SYSTEMS AND ITS APPLICATION TO BIOINSPIRED AUTONOMOUS UNDERWATER VEHICLES; Vortex Method for the Analysis of Complex, Unsteady and Vortical Flows around a Swimming Fish Understanding the Hydrodynamics of Swimming: From Fish Fins to Flexible Propulsors for Autonomous Underwater VehiclesReverse Engineering of Self-Propelled Anguilliform Swimmers; An Exploration of Passive and Active Flexibility in Biocomotion through Analysis of Canonical Problems; Modeling the Dynamics of Human Swimming; Geometric Mechanics and Aquatic Locomotion through Vortex Shedding; Vortex Rings in Bio-Inspired and Biological Jet Propulsion; Fluid-Structure Interactions in Pelagic Trawls and Probable Consequences for the Selectivity of the Fishing Gear; Hammerhead - A Vision Guided AUV Robustness of Biomimetic Underwater Vehicles under Disturbances

Sommario/riassunto

The 37 peer-reviewed papers making up this collection together present a wealth of up-to-date information on, "Mining Smartness from Nature". The papers are grouped into the following chapters: 1: Algorithms, mechanisms and structures in nature as an inspiration to mimicking; 2: Biomimetic materials; 3: Bio-inspired sensors and actuators; 4: Biologically inspired systems and robotics; 5: Biomimetic flow control in aquatic systems and its application to bioinspired autonomous underwater vehicles. This special volume has also been published online in the series, "Advances in Science and Techn

