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Nota di contenuto	Natural and Artificial Systems: Compare, Model or Engineer? -- Functional Morphologies -- An Introduction to the Analysis of Braitenberg Vehicles 2 and 3 Using Phase Plane Portrait -- Perception and Motor Control Synthesis and Adaptation of Effective Motor Synergies for the Solution of Reaching Tasks -- Gaze Allocation Analysis for a Visually Guided Manipulation Task -- Using Sensorimotor Contingencies for Terrain Discrimination and Adaptive Walking Behavior

in the Quadruped Robot Puppy -- How Walking Influences the Development of Absolute Distance Perception -- Modelling Interaction in Multi-modal Affordance Processing with Neural Dynamics -- A Bio-inspired Model Reliably Predicts the Collision of Approaching Objects under Different Light Conditions -- Synthesising a Motor-Primitive Inspired Control Architecture for Redundant Compliant Robots -- Using Sensorimotor Contingencies for Prediction and Action Planning -- A Bio-inspired Control System for a Wearable Human-Machine Interface -- A Finite Element Method of Electric Image in Weakly Electric Fish -- Multimodal Integration of Visual Place Cells and Grid Cells for Navigation Tasks of a Real Robot -- Towards a Neural Hierarchy of Time Scales for Motor Control -- Modelling Walking Behaviors Based on CPGs: A Simplified Bio-inspired Architecture -- Plastic Representation of the Reachable Space for a Humanoid Robot -- Evolution Towards Behavioral Consistency in Neuroevolution -- Evolving Variants of Neuro-Control Using Constraint Masks -- The Search for Beauty: Evolution of Minimal Cognition in an Animat Controlled by a Gene Regulatory Network and Powered by a Metabolic System -- Evolving Reactive Controller for a Modular Robot: Benefits of the Property of State-Switching in Fractal Gene Regulatory Networks -- Adaptation and Genomic Evolution in EcoSim -- Degeneration of a von Neumann Self-reproducer into a Self-copier within the Avida World -- The Emergence of Pathological Constructors When Implementing the von Neumann Architecture for Self-reproduction in Tierra -- Automatic Synthesis of Controllers for Real Robots Based on Preprogrammed Behaviors -- Self-Organization of Visual Sensor Topologies Based on Spatiotemporal Cross-Correlation -- Self-organization of Spinal Reflexes Involving Homonymous, Antagonist and Synergistic Interactions -- A Computational Model of the Role of Serotonin in Reversal Learning -- Which Temporal Difference Learning Algorithm Best Reproduces Dopamine Activity in a Multi-choice Task ? -- Multi-timescale Nexting in a Reinforcement Learning Robot -- Self-organizing Developmental Reinforcement Learning -- Adaptive Learning in Continuous Environment Using Actor-Critic Design and Echo-State Networks -- Learning Adjectives and Nouns from Affordances on the iCub Humanoid Robot -- Learning and Adaptation of Sensorimotor Contingencies: Prism-Adaptation, a Case Study -- Unsupervised Learning of a Reduced Dimensional Controller for a Tendon Driven Robot Platform -- Adaptive Quadruped Locomotion: Learning to Detect and Avoid an Obstacle -- Pedro Silva, Vitor Matos, and Cristina P. Santos Attentional Action Selection Using Reinforcement Learning -- Analysing an Evolved Robotic Behaviour Using a Biological Model of Collegial Decision Making -- On the Evolution of Homogeneous Multi-robot Teams: Clonal versus Aclonal Approach -- Biologically-Inspired Deceptive Behavior for a Robot -- Automated Synthesis of Locomotion Controllers for Self-reconfigurable Modular Robots -- Towards Detecting Group Identities in Complex Artificial Societies -- Cost, Precision, and Task Structure in Aggression-Based Arbitration for Minimalist Robot Cooperation -- Examining the Information Requirements for Flocking Motion.

Sommario/riassunto

This book constitutes the proceedings of the 12th International Conference on Simulation of Adaptive Behavior, SAB 2012, held in Odense, Denmark, in August 2012. The 22 full papers as well as 22 poster papers included in this volume were carefully reviewed and selected from 66 submissions. They are organized in topical sections named: animat approach and methodology; perception and motor control; evolution; learning and adaptation, and collective and social behavior.