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Nota di contenuto	Invited Lectures -- Computing in Nonlinear Media: Make Waves, Study Collisions -- Ant Algorithms Solve Difficult Optimization Problems -- The Shifting Network: Volume Signalling in Real and Robot Nervous Systems -- A Study of Replicators and Hypercycles by Typogenetics -- Emergence of a Super-Turing Computational Potential in Artificial Living Systems -- Agents in Environments -- Eco-Grammars to Model Biological Systems: Adding Probabilities to Agents -- Dynamics of the

Environment for Adaptation in Static Resource Models -- Adaptive Behavior through a Darwinist Machine -- Fault-Tolerant Structures: Towards Robust Self-Replication in a Probabilistic Environment -- Survival of the Unfittest? - The Seceder Model and its Fitness Landscape -- Evolving Multi-agent Networks in Structured Environments -- Suicide as an Evolutionarily Stable Strategy -- Eden: An Evolutionary Sonic Ecosystem -- New Hybrid Architecture in Artificial Life Simulation -- "In Silico" Experiments on Heavy Metal Sorption by Algal Biomass -- Spatially Explicit Models of Forager Interference -- Antigens, Antibodies, and the World Wide Web -- I Like What I Know: How Recognition-Based Decisions Can Structure the Environment -- Artificial Chemistry -- Bio-Language for Computing with Membranes -- Artificial Chemistry: Computational Studies on the Emergence of Self-Reproducing Units -- Stability of Metabolic and Balanced Organisations -- Spontaneous Formation of Proto-cells in an Universal Artificial Chemistry on a Planar Graph -- Cellular and Neuronal Systems -- Understanding the Agent's Brain: A Quantitative Approach -- Observations on Complex Multi-state CAs -- Artificial Neural Networks and Artificial Evolution as Tools to Study Organization of Spatial Behavior in Rats -- transsys: A Generic Formalism for Modelling Regulatory Networks in Morphogenesis -- Evolution of Reinforcement Learning in Uncertain Environments: Emergence of Risk-Aversion and Matching -- Searching for One-Dimensional Cellular Automata in the Absence of a priori Information -- Neutral Networks and Evolvability with Complex Genotype-Phenotype Mapping -- Externally Controllable and Destructible Self-Replicating Loops -- The Effect of Neuromodulations on the Adaptability of Evolved Neurocontrollers -- Collaborative Systems -- Testing Collaborative Agents Defined as Stream X-Machines with Distributed Grammars -- A Three-Dimensional Environment for Self-Reproducing Programs -- Pareto Optimality in Coevolutionary Learning -- On Emergence in Evolutionary Multiagent Systems -- Division of Labour in Simulated Ant Colonies Under Spatial Constraints -- Emergent Organisation in Colonies of Simple Automata -- Evolving Communication without Dedicated Communication Channels -- Modelling Animal Behaviour in Contests: Conventions for Resource Allocation -- A Model of Human Mate Choice with Courtship That Predicts Population Patterns -- Establishing Communication Systems without Explicit Meaning Transmission -- The Difficulty of the Baldwinian Account of Linguistic Innateness -- Evolution -- Making Evolution an Offer It Can't Refuse: Morphology and the Extradimensional Bypass -- Model of Evolutionary Emergence of Purposeful Adaptive Behavior. The Role of Motivation -- Passing the ALife Test: Activity Statistics Classify Evolution in Geb as Unbounded -- On the Evolution of Artificial Consciousness -- Some Effects of Individual Learning on the Evolution of Sensors -- Transitions in a Simple Evolutionary Model -- Towards the Implementation of Evolving Autopoietic Artificial Agents -- Verification of Text Transcription History by Using Evolutionary Algorithms -- Genetic Algorithm as a Result of Phenomenological Reduction of Natural Evolution -- String Rewriting Grammar Optimized Using an Evolvability Measure -- A Visually-Based Evolvable Control Architecture for Agents in Interactive Entertainment Applications -- Symbiotic Composition and Evolvability -- Robotics -- nBrains A New Type of Robot Brain -- Can Wheeled Robots Illuminate Adaptive Behaviour? -- Evolution, Adaption, and Behavioural Holism in Artificial Intelligence -- Evolving Bipedal Locomotion with a Dynamically-Rearranging Neural Network -- SlugBot: A Robot Predator -- Mobile Robot Control Based on Boolean Logic with Internal Memory -- Emergence of Cooperative Tactics by

Soccer Agents with Ability of Prediction and Learning -- Patch Sorting: Multi-object Clustering Using Minimalist Robots -- Behavioural Formation Management in Robotic Soccer -- Control System of Flexible Structure Multi-cell Robot Using Amoeboid Self-Organization Mode -- Towards Self-Organising Structure Formations: A Decentralized Approach -- Vision, Visualisation, Language, and Communication -- Affective Interaction between Humans and Robots -- The Survival of the Smallest: Stability Conditions for the Cultural Evolution of Compositional Language -- Smooth Operator? Understanding and Visualising Mutation Bias -- The Use of Latent Semantic Indexing to Identify Evolutionary Trajectories in Behaviour Space -- Data Visualization Method for Growing Self-Organizing Networks with Ant Clustering Algorithm -- Insect Inspired Visual Control of Translatory Flight -- The Importance of Rapid Cultural Convergence in the Evolution of Learned Symbolic Communication -- Emergent Syntax: The Unremitting Value of Computational Modeling for Understanding the Origins of Complex Language -- Miscellaneous -- Amorphous Geometry -- Artificial Life and Historical Processes -- Aesthetic Fitness and Artificial Evolution for the Selection of Imagery from the Mythical Infinite Library -- Distributing a Mind on the Internet: The World-Wide-Mind -- The Dimensions of the Cyber Universe -- Taxonomy in Alife. Measures of Similarity for Complex Artificial Organisms -- The ?-Game System: An Approach to a Meta-game -- Formal Description of Autopoiesis Based on the Theory of Category -- An Information-Theoretic Approach for the Quantification of Relevance -- First Implementation of the World-Wide-Mind -- Evolving Lives: The Individual Historical Dimension in Evolution.

Sommario/riassunto

Why is the question of the difference between living and non-living matter - intellectually so attractive to the man of the West? Where are our dreams about our own ability to understand this difference and to overcome it using the firmly established technologies rooted? Where are, for instance, the cultural roots of the enterprises covered nowadays by the discipline of Artificial Life? Contemplating such questions, one of us has recognized [6] the existence of the eternal dream of the man of the West expressed, for example, in the Old Testament as follows: . . . the Lord God formed the man from the dust of the ground and breathed into his nostrils the breath of life, and the man became a living being (Genesis, 2. 7). This is the dream about the workmanlike act of the creation of Adam from clay, about the creation of life from something non-living, and the confidence in the magic power of technologies. How has this dream developed and been converted into a reality, and how does it determine our present-day activities in science and technology? What is this confidence rooted in? Then God said: "Let us make man in our image. . ." (Genesis, 1. 26). Man believes in his own ability to repeat the Creator's acts, to change ideas into real things, because he believes he is godlike. This confidence is – using the trendy Dawkins' term – perhaps the most important cultural meme of the West.
