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Soggetti	Computer-aided engineering Computer simulation Microprocessors Computer logic Logic, Symbolic and mathematical Artificial intelligence Computer-Aided Engineering (CAD, CAE) and Design Simulation and Modeling Processor Architectures Logics and Meanings of Programs Mathematical Logic and Formal Languages Artificial Intelligence
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Nota di contenuto	Complex Systems Tools and Applications -- On Modeling and Simulation of Flows of Water by 3D-Cellular Automata -- Representation and Processing of Complex Knowledge -- How Many Rounds to KO?, or Complexity Increase by Cryptographic Map Iteration -- A Non-standard Genetic Algorithm Approach to Solve Constrained School Timetabling Problems -- Application of Uncertain Variables to Task and Resource Distribution in Complex Computer Systems -- A Framework for Modelling the User Interaction with a Complex System

-- A Categorical Approach to NP-Hard Optimization Problems -- Logic and Formal Tools -- A Formulation for Language Independent Prelogical Deductive Inference -- Multi-agent Simulation in Random Game Generator -- The Zero Array: A Twilight Zone -- Invariants and Symmetries among Adaptive Agents -- Generalizing Programs via Subsumption -- Social and Intelligent Systems -- Modeling with Archetypes: An Effective Approach to Dealing with Complexity -- Equal Opportunities Analysis in the University: The Gender Perspective -- Approximate Solutions to Semi Markov Decision Processes through Markov Chain Montecarlo Methods -- Knowledge Base for Evidence Based Medicine with Bioinformatics Components -- Diversified Approach to Methodology and Technology in Distributed Intelligent Building Systems -- Temporal Approaches in Data Mining. A Case Study in Agricultural Environment -- Personalized Guided Routes in an Adaptive Evolutionary Hypermedia System -- Temporal Data Management and Knowledge Acquisition Issues in Medical Decision Support Systems -- Distributed Computing -- Development of a Scalable, Fault Tolerant, and Low Cost Cluster-Based e-Payment System with a Distributed Functional Kernel -- Generative Communication with Semantic Matching in Distributed Heterogeneous Environments -- Mapping Nautilus Language into Java: Towards a Specification and Programming Environment for Distributed Systems -- Design of a Medical Application Using XML Based Data Interchange -- Partial-Order Reduction in Model Checking Object-Oriented Petri Nets -- On the Strong Co–induction in Coq -- Autonomous and Control Systems -- A Throttle and Brake Fuzzy Controller: Towards the Automatic Car -- ADVOCATE II: ADVanced On-Board Diagnosis and Control of Autonomous Systems II -- Segmentation of Traffic Images for Automatic Car Driving -- Vision Based Intelligent System for Autonomous and Assisted Downtown Driving -- Using Fractional Calculus for Lateral and Longitudinal Control of Autonomous Vehicles -- Computational Methods in Biomathematics -- Recent Advances in the Walking Tree Method for Biological Sequence Alignment -- Towards Some Computational Problems Arising in Biological Modeling -- Single Point Algorithms in Genetic Linkage Analysis -- A Self-adaptive Model for Selective Pressure Handling within the Theory of Genetic Algorithms -- Computational Methods for the Evaluation of Neuron’s Firing Densities -- Developing the Use of Process Algebra in the Derivation and Analysis of Mathematical Models of Infectious Disease -- On Representing Biological Systems through Multiset Rewriting -- Natural and Artificial Neural Nets -- A Model of Neural Inspiration for Local Accumulative Computation -- Emergent Reasoning from Coordination of Perception and Action: An Example Taken from Robotics -- Inverse Kinematics for Humanoid Robots Using Artificial Neural Networks -- Neurosymbolic Integration: The Knowledge Level Approach -- On Parallel Channel Modeling of Retinal Processes -- Geometric Image of Statistical Learning (Morphogenetic Neuron) -- Systems and Computational Tools for Neuronal Retinal Models -- Neuroinformatics and Neuroimaging -- A Novel Gauss-Markov Random Field Approach for Regularization of Diffusion Tensor Maps -- Coloring of DT-MRI Fiber Traces Using Laplacian Eigenmaps -- DT-MRI Images : Estimation, Regularization, and Application -- An Efficient Algorithm for Multiple Sclerosis Lesion Segmentation from Brain MRI -- Dynamical Components Analysis of FMRI Data: A Second Order Solution -- Tensor Field Regularization Using Normalized Convolution -- Volumetric Texture Description and Discriminant Feature Selection for MRI -- White Matter Mapping in DT-MRI Using Geometric Flows -- Anisotropic Regularization of Posterior Probability Maps Using Vector Space

Projections. Application to MRI Segmentation -- Fast Entropy-Based Nonrigid Registration -- Image Processing -- 3D Reconstruction from a Vascular Tree Model -- ESKMod, a CommonKADS Knowledge Model Integrating Multiple Classic Edge Based Segmentation Algorithms -- Frequency Analysis of Contour Orientation Functions for Shape Representation and Motion Analysis -- Preprocessing Phase in the PIETSI Project (Prediction of Time Evolution Images Using Intelligent Systems) -- Devices to Preserve Watermark Security in Image Printing and Scanning.

Sommario/riassunto

The concept of CAST as Computer Aided Systems Theory, was introduced by F. Pichler of Linz in the late 80's to include those computer theoretical and practical developments as tools to solve problems in System Science. It was considered as the third component (the other two being CAD and CAM) that will provide for a complete picture of the path from Computer and Systems Sciences to practical developments in Science and Engineering. The University of Linz organized the ?rst CAST workshop in April 1988, which demonstrated the acceptance of the concepts by the scienti?c and technical community. Next, the University of Las Palmas de Gran Canaria joined the University of Linz to organize the ?rst international meeting on CAST, (Las Palmas February 1989), under the name EUROCAST'89, that was a very successful gathering of systems theorists, computer scientists and engineers from most of European countries, North America and Japan.
ItwasagreedthatEUROCASTinternationalconferenceswouldbeorganized every two years. Thus, the following EUROCAST meetings took place in Krems (1991), Las Palmas (1993), Innsbruck (1995), Las Palmas (1997), Vienna (1999) and Las Palmas(2001), in addition to an extra-European CAST Conference in Ottawain1994.
SelectedpapersfromthosemeetingswerepublishedbySpringer- Verlag Lecture Notes in Computer Science nos. 410, 585, 763, 1030, 1333, 1728 and 2178 and in several special issues of Cybernetics and Systems: an lnternat- nal Journal. EUROCAST and CAST meetings are de?nitely consolidated, as it is demonstrated by the number and quality of the contributions over the years.