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Documents -- Verification of Language Based Fault-Tolerance -- Applying Stacking and Corpus Transformation to a Chunking Task -- Extracting Computer Algebra Programs from Statements -- Integrating Syntactic Information by Means of Data Fusion Techniques -- Unsupervised Learning in Information Retrieval Using NOW Architectures -- An Iterative Method for Mining Frequent Temporal Patterns -- Information Applications Components -- Data Mining with Scatter Search -- Web Usage Mining Project for Improving Web-Based Learning Sites -- Similarity Queries in Data Bases Using Metric Distances – from Modeling Semantics to Its Maintenance -- A WEB-CASE Tool Prototype for Hybrid Software Development -- An Augmentative Communication System Based on Adaptive Evolutionary Hypermedia Systems -- The Gaps of the Thesaurus Wordnet Used in Information Retrieval -- Fuzzy Adaptive Objects (Logic of Monitors) -- A Model-Based Architecture for Fuzzy Temporal Diagnosis -- Extension of Ontologies Assisted by Automated Reasoning Systems -- A Software Architecture for Effective Document Identifier Reassignment -- An Ontology for Reusing Synthetic Tasks -- A Tractable Subclass of Fuzzy Constraint Networks -- Parallel State Space Generation and Exploration on Shared-Memory Architectures -- Towards Automated Controlling of Human Projectworking Based on Multiagent Systems -- Cryptography and Spectral Analysis -- Tree-Structured Legendre Multi-wavelets -- Remarks on Calculation of Autocorrelation on Finite Dyadic Groups by Local Transformations of Decision Diagrams -- A New Pseudo-Random Generator Based on Gollmann Cascades of Baker-Register-Machines -- An Excellent Permutation Operator for Cryptographic Applications -- Fault Cryptanalysis of ElGamal Signature Scheme -- Complexity-Theoretical Approaches to the Design and Analysis of Cryptographical Boolean Functions -- Algorithm for Proving the Knowledge of an Independent Vertex Set -- Improvement of the Edit Distance Attack to Clock-Controlled LFSR-Based Stream Ciphers -- Protocol Analysis for Concrete Environments -- Computer Vision -- Pattern Recognition in AVHRR Images by Means of Hibryd and Neuro-fuzzy Systems -- Image Processing Techniques for Braille Writing Recognition -- Retinal Based Authentication via Distributed Web Application -- Skeleton Extraction of 2D Objects Using Shock Wavefront Detection -- Cue Combination for Robust Real-Time Multiple Face Detection at Different Resolutions -- Evolutionary Color Constancy Algorithm Based on the Gamut Mapping Paradigm -- Vision Based Automatic Occupant Classification and Pose Recognition for Smart Airbag Deployment -- Biocomputing -- A Wiener Neuronal Model with Refractoriness -- On Myosin II Dynamics: From a Pulsating Ratchet to a Washboard Potential -- Feedback Effects in Simulated Stein's Coupled Neurons -- Upcrossing First Passage Times for Correlated Gaussian Processes -- Convergence of Iterations -- Semiautomatic Snake-Based Segmentation of Solid Breast Nodules on Ultrasonography -- Parallel Progressive Multiple Sequence Alignment -- Concepts and Systems Tools for Modelling Signal Processing in Vertebrate Retina -- Application of Multichannel Vision Concepts and Mechanisms in an Artificial Industrial Vision System -- Intelligent Vehicular Sytems -- Soft Computing and Geometrical Control for Computer Aided Driving -- A Monocular Solution to Vision-Based ACC in Road Vehicles -- Multi-objective Dynamic Optimization for Automatic Parallel Parking -- Electric Power Steering Automation for Autonomous Driving -- Computer Vision Application: Real Time Smart Traffic Light -- Permanency Memories in Scene Depth Analysis -- Pedestrian Detection for Intelligent Vehicles Based on Active Contour Models and Stereo Vision -- Fast Road Sign Detection Using Hough Transform for Assisted Driving of Road Vehicles -- Robotic Soccer,

Robotics and Control -- Advances in Robotics -- Current and Future Trends and Challenges in Robot Soccer -- Strategy and Communication in Robotic Soccer Game -- Rete Algorithm Applied to Robotic Soccer -- Towards a Biomathematical Model of Intentional Autonomous Multiagent Systems -- A Controller Network for a Humanoid Robot -- Programming by Integration in Robotics -- A Mathematical Formalism for the Evaluation of C-Space for Redundant Robots -- Global Modal Logics for Multiagent Systems: A Logical Fibering Approach -- Improved Non-standard Discretization Methods for Nonlinear Dynamical Control Systems -- Hierarchical Control of a Distributed Solar Collector Field -- Explanatory Analysis of Data from a Distributed Solar Collector Field.

Sommario/riassunto

The concept of CAST, computer aided systems Theory, was introduced by F. Pichler of Linz in the late 1980s to include those computer theoretical and practical developments used as tools to solve problems in system science. It was considered as the third component (the other two being CAD and CAM) that would 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 first CAST workshop in April 1988, which demonstrated the acceptance of the concepts by the scientific and technical community. Next, the University of Las Palmas de Gran Canaria joined the University of Linz to organize the first international meeting on CAST (Las Palmas February 1989), under the name EUROCAST 1989, a very successful gathering of systems theorists, computer scientists and engineers from most European countries, North America and Japan. It was agreed that EUROCAST international conferences would be organized every two years. Thus, the following EUROCAST meetings took place in Krems (1991), Las Palmas (1993), Innsbruck (1995), Las Palmas (1997), Vienna (1999), Las Palmas (2001) and Las Palmas (2003) in addition to an extra-European CAST conference in Ottawa in 1994. Selected papers from those meetings were published as Springer Lecture Notes in Computer Science vols. 410, 585, 763, 1030, 1333, 1728, 2178 and 2809 and in several special issues of Cybernetics and Systems: an International Journal.