

LIST OF CONTENTS

Preface	xvii
Is "Cybernetics and Systems Research" a System? A Scientometric Analysis A.Lewicka-Strzalecka	1
General Systems Methodology	
Chairperson: G.J.Klir (U.S.A.)	
Physical Cybernetics; its Elementary Laws C.Bogdanski	11
Finite Decomposable Sequential Systems in the Category of Semigroups W.Jacak, I.Sierocki	19
M-D Matrix and M-D Transform Methods N.C.Hu	27
Subjective Perception of Time and Systems R.Vallée	35
Biological Information as a System Description G.Kampis	39
Natural Systems According to Modern Systems Science: Three Dualities M.E.Carvallo	47
A Complexity Measure for Binary Relational Systems J.Stokłosa	55
Stabilizing Partially Observable Uncertain Linear Systems J.-P.Schellhorn	63
Active Control of a System by the New General System Logical Theory G.Resconi	71

Indeterminism in System Science C.M.Elstob	79
Chain Models for Growth Processes / Code Theory M.Peschel, W.Mende, F.Breitenecker	87
General Entity Structures for System Analysis W.Delaney, M.P.Roccotelli, E.Vaccari	95
Linear Harmonic Translation Invariant Systems on Finite Non-Abelian Groups R.S.Stankovic	103
Models of Dynamical Modelling under Uncertainty R.Pla-Lopez	111
A Cellular-Space Model for Studying Wave-Particle Dualism D.Gernert	117
A General Systems Analysis of Goal-Directed Heuristic Computation M.K.Weir	123
Total Entropy. A Unified Approach to Discrete Entropy and Continuous Entropy G.Jumarie	131
Structural Entropy. A New Approach for Systems Structure's Analysis I.Stantchev	139
 Designing and Systems	
Chairperson: W.Gasparski (Poland)	
Organizational Health in the Systems Age: A Renaissance Systems Perspective W.J.Reckmeyer	149
Design and Planning V.Nemeny	157
General Theory of Design and its Application to Design / Planning / in Medicine J.Doroszewski, W.Gasparski	165
The Development of Design Methodology in Architecture, Urban Planning and Industrial Design N.Cross	173

Methodical Design in Engineering - Basis and Applicability W.E.Eder, V.Hubka	181
The Cybernetic Model of the Organisation: An Assessment M.C.Jackson	189
Functional Approach Evolution in Organizational Designing Z.Martyniak	197
System-Oriented Designing Procedures J.Petr	205
The Structure of the Design Process W.Tarnowski	213
Procedural Building Blocks: The Interface between Argumentative Design Discourse and Formal Evaluation Procedures for Design T.Mann	221
A Framework for the Design of Problem-Solving Methodologies P.Keys	229
Methodological Principles of Large Scale Complex Engineering Systems Design T.Basiewicz	237
Attribute-Oriented Projects: Configuration Management Framework and Two Examples L.Krzanik	245
The Flow Chart Expansion Method of the Design Problem D.Miller	253
Queueing Systems Design, Control and Simulation: The Interrelationships V.Čerić	261
An Interactive Model for Computer Aided Design Education and Research on Knowledge Base of Designers N.Bayazit	267
Humanity, Architecture, and Conceptualisation	
Chairperson: G.Pask (UK)	
The Way You Look Determines What You See or Self-Organization in Management and Society M.U.Ben-Eli, G.J.B.Probst	277

Cathedrals in the Mind: The Architecture of Metaphor in Understanding Learning K.Forsythe	285
New Socio-Cybernetic Foundations for Value Systems A.Cornelis	293
The Paradigm-Shift from Architected Inhumanity to Humanized Architectures in Corporate Reality G.Broekstra	301
Cybernetics in Biology and Medicine	
Chairpersons: G.Porenta (Austria) L.M.Ricciardi (Italy)	
On Some Fresh Air in Neural Modeling J.M.Mira, A.E.Delgado	311
On the Probability Densities of an Ornstein-Uhlenbeck Process with a Reflecting Boundary L.Ricciardi, L.Sacerdote	319
Morphogenesis and Properties of Neuronal Model Networks I.E.Dammasch	327
Pattern Formation in Neural Systems: I.Autorhythmicity, Entrainment, Quasiperiodicity and Chaos in Neurochemical Systems P.Erdi, G.Barna	335
Pattern Formation in Neural Systems: II.Noise-Induced Selective Mechanism for the Ontogenetic Formation of Ocular Dominance Columns G.Barna, P.Erdi	343
Some Aspects of Modeling Neuronal Interactions in the Basal Ganglia G.Porenta, P.Riederer	351
A New Algorithmic Approach to First-Passage-Time Problems A.Buonocore, A.G.Nobile, L.M.Ricciardi	359
Selfdual and Other Structures of Optimal Cycles in Neural Network Behaviour E.Labos	367
Simulation of a Neural Network for Adaptive Colour Perception N.Ioannides, N.Paritsis, C.P.Meletis	375

On the Statistical Prediction of NIPTS Due to Industrial Stationary Noise Exposure L.Li, W.Zhou, Z. Xie	383
Positive Protosystolic Peak of Coronary Arterial Blood Flow. A New Index of Epicardial Compliance? G.Verlato, A.Cevese, R.Poltronieri	387
Plasticity of the Cell Membrane Receptors (A Model) A.S.Koch, R.Nienhaus	395
Predator-Prey and 'Evolon' - Behaviour Modelled by Random-Walk Processes F.Breitenecker, M.Peschel, W.Mende	403
Representation of Complex Ontogenetic Trajectories I.Molnár, G.Vida, E.Lábos	411
Couplings between Molecular and Cellular Levels: Simulation of Drug Action P.Auger, C.Julien	419
Pseudorandom Interval Maps for Simulation of Normal and Exotic Neuronal Activities E.Nógrádi, E.Lábos	427
The Goore Game and Daisyworld - Substrates for Self-Organization A.M.Andrew	435
Nonparametric Methods for Measurement of Height Growth D.Rutkowska	443
 Cybernetics of Socio-Economic Systems	
Chairpersons: K.Balkus (U.S.A.) O.Ladanyi (Austria)	
Optimal Stabilizing and Destabilizing "Stabilization" Policies R.Neck	449
Macrosystem of the Societal Self-Organization K.Balkus	457
Peace as a Cybernetic Control Problem F.Breitenecker, P.Kopacek, M.Peschel	465
Problems in the Design of Large Data-Bases O.J.Hanson	473

The Development of an Experimental Distributed Database. Some Practical Experience M.Flower, J.Long, N.Revell, M.Shave	481
Addressing Social Conflicts through Naturalized Programming I.D.Cole	489
Institutional Review Boards as Complex Systems P.M.Trussell	497
A Directable Ashby System J.L.England, W.K.Warner	505
Using Mathematics for Introducing Systems Thinking to Children A.Graebe	513
The Art of Negotiations: A Systems Perspective A.K.Maitra	521
Information Value Analysis W.L.Gage	527
Model for Interdisciplinary Cooperation in the Construction of Industrial Plants by a Group of Producers O.G.Ladanyi, H.Ladanyi	533
Experience in Application of the Dialectical Systems Theory through "USOMID" for Mastering of Bureaucratic Relations in an Enterprise M.Mulej, V.Sauperl	541
The Graduate Management Admissions Test - Predictor or Pretender? O.Hanson	549
Computer-Aided Simulation of Control Processes in Enterprises S.von Känel, G.Schäfer	557
Computer-Aided Systems Analysis and Modelling of Innovation Strategies in the Field of Flexible Automation H.-G.Lauenroth	565
Present Status and Expected Developments in Computer Integrated Manufacture in the Socialist Countries F.S.Drechsler, A.M.Huska	571
 Fuzzy Sets - Meeting of the EURO Working Group	
Chairperson: C.Carlsson (Finland)	

Semi-Lattice Isomorphism of the Extensions of Possibility Measure and the Solutions of Fuzzy Relation Equation Z.Wang	581
Maximal Number of Lower Solutions in Fuzzy Relation Equation J.Drewniak	585
A Dominance of Alternatives for Decision Making in Probabilistic Fuzzy Environment E.Czogała	591
The Information Energy Gain as a Criterion of Comparison between Fuzzy Information Systems L.Pardo, M.L.Menendez, J.A.Pardo	599
An Interactive Method for Multiobjective Nonlinear Programming Problems with Fuzzy Parameters M.Sakawa, H.Yano	607
Systems Engineering for Design Automation	
Chairpersons: K.Kellermayr (Austria) F.Pichler (Austria)	
Mathematical Systems Theory and Design Automation F.R.Pichler	617
System Paradigms and Design Practice M.S.Elzas	625
Toolbox or Cookbook? The Future Development of Structured Systems Methodologies J.Crinnion	633
Tool Support for Model Description with SDL and Simulation D.Hogrefe	641
A Systems Engineering Oriented Framework for Computer Based Design Automation Systems K.H.Kellermayr	649
Computer Aided System Design S.Zorn	657
Some Experiences with AI Methods in CAD M.Gams, M.Spiegel	661
LOBSTER-M: A Mixed Mode Simulator for CAD A.Javor	669

Computer in the Architect's Workshop - New International Style in Architecture J.Kłos	677
A Sequential Algorithm for the Synthesis of Tree Automata I.Sierocki, W.Jacak	685
Multirate Adaptive Control for Lateral Dynamics of Aircrafts I.Eiguren, P.Esgueva, M.de La Sen	693
Symbolic Algorithm for Observing the States of a Class of Nonlinear Systems M.Luksic	701
Coordination of Concurrent Processes: Automatic Program Synthesis Z.Banaszak	709
Some Optimization Methods for Experimental Investigation Dialogue Systems A.Arakelian	717
Methodological Improvements and New Applications of Expert Systems	
Chairpersons: W.Horn (Austria) C.A.Kulikowski (U.S.A.)	
Has the Time Come for a Medical Expert System to Go Down in the Bullring: The Tropicaid Experiment B.Auvert, P.Aegerter, V.Gilbos, E.Benillouche, P.Boutin, G.Desve, M.-F.Landre, D.Bos	727
Multilevel Inference Control in Expert System Codex F.Gyárfás, M.Popper	735
Analyzing, Representing and Interpreting Expert Strategic Knowledge L.Johnson, E.T.Keravnou	743
Representing Legal Texts by Logic Programs K.Yalumov, G.Gargov	751
Mixing PROLOG and LISP B.Pfahring, C.Holzbaur	759
Implementing Inference Strategies in Prolog Based Expert Systems L.Console, G.Rossi	767
Doxastic Logic and Doxastic-Epistemic Meta-Reasoning in Expert Systems K.M.Said, G.Provan	775

Generalization and Particularization of Production Rules in Expert Systems W.Pedrycz	783
 Knowledge Based Natural Language Processing	
Chairpersons: R.Brachman (U.S.A.) H.Trost (Austria)	
Concept-Class-Prototype: unum an trinum? C.Castelfranchi, O.Stock	793
The Role of Metaknowledge in Text Comprehension G.Airenti, M.Colombetti, M.C.Gallo	799
Micro-World Recognition by "Restless Debugging" Y.Kodratoff	807
Semantic Interpretation in Natural Language Interface Applications H.Horacek	815
The Overanswering Mechanism in the Fido System N.Bersia, B.di Eugenio, L.Lesmo, P.Torasso	823
Achieving Text Coherence in a Generator for German Texts H.Horacek, E.Buchberger	831
Interactive Semi-Automatic Creation of a Morphological Lexicon H.Trost, G.Dorffner	837
Error Messages in Spoken Natural Language C.C.R.Turk	845
 Artificial Intelligence / Symbolic Computation	
Chairperson: B.Buchberger (Austria)	
A Formal Framework for Modelling Agents N.Seel	855
Mental Models and Inferences in Everyday Reasoning B.G.Bara, A.G.Carassa, G.C.Geminiani	863
Logical Stratification of Organic Intelligence J.J.Koenderink, A.J.van Doorn	871

CM-System: New Methodology for Automated Theorem Proving and Program Synthesis Systems M.Franova	879
Stochastic Logical Expressions I.Ratkó	887
A Formalism for Specifying Software Generation B.H.Rudall	893
Modularisation in EDDA-S, a Data Flow Design Language Supporting Incremental Software Development R.Pitrik	901
A Fast Serial and Parallel Thinning Algorithm P.S.P.Wang, Y.Y.Zhang	909
Hierarchical Dynamic Data Structure for Representing Optimal Adaptive Controllers by Assemblies M.de La Sen	917
Author Index	925

