

CONTENTS

Preface	ix
Obituaries: T. Da-te and I. Brunstein	xiii

INVITED SPEAKERS: CHAOS AWARD AND CASYS'07 AWARD

Neural Approaches to Machine Consciousness	3
I. Aleksander	
Quantum Mechanics, Pattern Recognition, and the Mammalian Brain	15
G. Chapline	

INTRODUCTION TO COMPUTING ANTICIPATORY SYSTEMS

New Trends in Computing Anticipatory Systems: Emergence of Artificial Conscious Intelligence with Machine Learning Natural Language	25
D. M. Dubois	
The Communication of Meaning in Anticipatory Systems: A Simulation Study of the Dynamics of Intentionality in Social Interactions	33
L. Leydesdorff	

DISCRETE PHYSICS, QUANTUM SYSTEMS, AND THERMODYNAMICS

Photon Splitting and Pair Conversion in Strong Magnetic Fields	53
M. G. Baring	
Thermodynamic Model of Noise Information Transfer	65
B. Hejna	
How to Initiate and to Disturb Entanglement	76
D. Gernert	
Synchronous Discrete Harmonic Oscillator	82
A. F. Antippa and D. M. Dubois	
On the Quantum Potential and Pulsating Wave Packet in the Harmonic Oscillator	100
D. M. Dubois	

*6th BCSCMsG International Symposium, Organized by Peter J. Marcer,
British Computer Society—Cybernetic Machine Specialist Group (BCS)*

Nature's Code	117
V. J. Hill and P. Rowlands	
Elementary Particle Spectroscopy in Regular Solid Rewrite	127
E. Trelle	

ANTICIPATORY SYSTEMS, AGENTS, LOGICS, AND CELLULAR AUTOMATA

Extending GST for the Study of Organized Complexity Systems	145
E. Vaccari	
Systems in a Retardation and Anticipation Relation: Mathematical Developments, Interpretations, Examples	151
E. Otlacan	

An Investigation of the Effect of Using Anticipation in a Technological Substitution Model	166
M. E. Burke	
Growing Up of Autonomous Agents: An Emergent Phenomenon	177
G. Morgavi and L. Marconi	
Control System for Sustainable Development	187
I. Carlman	
Decision Making Method Based on Paraconsistent Annotated Logic and Statistical Method: A Comparison	195
F. R. de Carvalho, I. Brunstein, and J. M. Abe	
On Some Invertible S-boxes Associated with Calm Filtrons	209
P. Siwak and I. Janicka-Lipska	

SOFT COMPUTING, SIMULATION, AND ANTICIPATORY COMPUTATION

Anticipation of Local Epidemics Management	223
I. Křivý	
Formalization of Embodied Sensorimotor Coupling System	233
K. Nakajima	
Anticipatory Reasoning about Mobile Objects in Anticipatory Reasoning-Reacting Systems	244
J. Cheng, Y. Goto, and N. Kitajima	
Interactive Resource Planning—An Anticipative Concept in the Simulation-Based Decision Support System EXPOSIM	255
U. Leopold-Wildburger and S. Pickl	
Service Selection Adaptation through Anticipation	266
J. J. Torres Carbonell	
Dynamic Fuzzy Model Development for a Drum-Type Boiler-Turbine Plant through GK Clustering	274
A. Habbi and M. Zelmat	

MIND, COMPUTER, NANOTECHNOLOGY, ANTICIPATION, AND BIOSYSTEMS

Computers, Nanotechnology and Mind	283
B. Ekdahl	
Informational Closed-Loop Coding-Decoding Control Conception as the Base of the Living or Organized Systems Theory	293
D. Kirvelis and K. Beitas	
Intent, Future, Anticipation: A Semiotic, Transdisciplinary Approach	307
H. Loeckenhoff	
Rule-Following as an Anticipatory Act: Interaction in Second Person and an Internal Measurement Model of Dialogue	316
T. Takahashi and Y.-P. Gunji	
The Semantics of Jitter in Anticipating Time Itself within Nano-Technology	326
M. Heather, N. Rossiter, and D. Sisiaridis	
Forecasting the Feasibility of Implementing Isolation Perimeters between GM and Non-GM Maize Fields under Agricultural Conditions	338
Y. Devos, M. Cougnon, O. Thas, E. M. De Clercq, K. Cordemans, and D. Reheul	

ECONOMY, RISK MANAGEMENT, DECISION AID, AND CONTROL SYSTEMS

Multiple Criteria and Multiple Periods Performance Analysis: The Comparison of North African Railways	351
K. Sabri, G. E. Colson, and A. M. Mbangala	
Dual Control of Education Process	366
K. N. Nechval, N. A. Nechval, G. Berzins, M. Purgailis, and U. Rozevskis	

The System Dynamics Model for Development of Organic Agriculture	380
Č. Rozman, A. Škraba, M. Kljajić, K. Pažek, M. Bavec, and F. Bavec	
Origin of Money: Dynamic Duality between Necessity and Unnecessity	390
Y. Tauchi, M. Kamiura, T. Haruna, and Y.-P. Gunji	
An Optimal Operation Strategy for a Bioprocess: Robustness Evaluation	401
M. Sbarciog, M. Loccufier, and E. Noldus	
Author Index	413