

Contents

Author Index	xvii
------------------------	------

The Automata Theoretic Approach

<i>Logical Aspects of Control of Discrete Event Systems: A Survey of Tools and Techniques</i> , J.G. Thistle, École Polytechnique de Montréal, Canada	3
<i>Automata-Theoretic Verification of Coordinating Processes</i> , R. P. Kurshan, ATT Bell Lab, USA	16
<i>Hierarchical COCOLOG for Finite Machines</i> , Y.J. Wei, McGill University, Canada and P.E. Caines, McGill University, Canada	29
<i>Nondeterministic Supervision under Partial Observations</i> , K. M. Inan, Middle East Technical University, Turkey	39
<i>Avoiding Blocking in Prioritized Synchronization Based Control of Nondeterministic Systems</i> , R. Kumar, University of Kentucky, USA and M.A. Shayman, University of Maryland, USA	49
<i>Supervisory Control for Nondeterministic Systems</i> , A. Overkamp, CWI, The Netherlands	59
<i>Effective Control of Logical Discrete Event Systems in a Trace Theory Setting Using the Reflection Operator</i> , R. Smedinga, University of Groningen, The Netherlands	66
<i>Diagnosability of Discrete Event Systems</i> , M. Sampath, University of Michigan, USA, R. Sengupta, University of Michigan, USA, S. Lafortune, University of Michigan, USA, K. Sinnamohideen, Johnson Controls Inc., USA and D. Teneketzis, University of Michigan, USA	73
<i>On the Supremal Lm-closed and the Supremal Lm-closed and L-controllable Sublanguages of a Given Language</i> , R.M. Ziller, Federal University of Santa Catarina, Brazil and J.E.R. Cury, Federal University of Santa Catarina, Brazil	80
<i>Continuous-Time Supervisory Synthesis for Distributed-Clock Discrete Event Processes</i> , S.D. O'Young, University of Toronto, Canada	86
<i>Conditions for Optimization of Discrete Event Systems Using Temporal Logic Models</i> , D. Ionescu, University of Ottawa, Canada	93
<i>Partial Difference Equation Extensions to Automata Regulator Theory</i> , Q. Yuan, University of Cincinnati, USA and A.D. Baker, University of Cincinnati, USA	101
<i>An Algebraic Temporal Logic Approach to the Forbidden State Problem in Discrete Event Control</i> , K. Seow, Nanyang Technological University, Singapore and R. Devanathan, Nanyang Technological University, Singapore	107
<i>Automata Timing Specification</i> , D. Delfieu, LAAS-CNRS, France and A.E.K. Sahraoui, LAAS-CNRS, France	115
<i>Synthesis of Static Controllers for Forbidden States Problems in Boolean C/E Systems Using the Boolean Differential Calculus</i> , S. Kowalewski, University of Dortmund, Germany	122

The Petri Net Approach

<i>Analysis of Autonomous Petri Nets with Bulk Services and Arrivals</i> , M. Silva, University of Zaragoza, Spain and E. Teruel, University of Zaragoza, Spain	131
<i>Dependability and Performability Analysis Using Stochastic Petri Nets</i> , K.S. Trivedi, Duke University, USA, G. Ciardo, College of William and Mary, M. Malhotra, ATT-Bell Lab., USA and S. Garg, USA	144
<i>Controlled Petri Nets: A Tutorial Survey</i> , L.E. Holloway, University of Kentucky, USA and B. H. Krogh, Carnegie-Mellon University, USA	158
<i>Functional and Performance Analysis of Cooperating Sequential Processes</i> , E. Teruel, University of Zaragoza, Spain, M. Silva, University of Zaragoza, Spain, J.M. Colom, University of Zaragoza, Spain and J. Campos, University of Zaragoza, Spain	169
<i>Hierarchically Combined Queueing Petri Nets</i> , F. Bause, University of Dortmund, Germany, P. Buchholz, University of Dortmund, Germany and P. Kemper, University of Dortmund, Germany	176
<i>Optimizing Structural Analysis of Extended Petri Nets Models</i> , L. Ferrarini, Politecnico di Milano, Italy and M. Trioni, Italy	183
<i>Reduced State Space Generation of Concurrent Systems Using Weak Persistency</i> , K. Hiraishi, JAIST, Japan	191
<i>A New Approach to Discrete Time Stochastic Petri Nets</i> , R. Zijal, University of Berlin, Germany and R. German, University of Berlin, Germany	198
<i>Analysis of Timed Place/Transition Nets Using Minimal State Graphs</i> , H.-M. Hanisch, University of Magdeburg, Germany	205
<i>An Algebraic Description of Processes of Timed Petri Nets</i> , J. Winkowski, Inst. Podstaw Informatyki, Poland	213

The Max-Plus Algebraic Approach

<i>Dioids and Discrete Event Systems</i> , G. Cohen, École des Mines de Paris, France	223
<i>On Structural Properties of Min-Max Systems</i> , G.J. Olsder, Delft University of Technology, The Netherlands	237
<i>Rational Series over Dioids and Discrete Event Systems</i> , S. Gaubert, INRIA, France	247
<i>Stochastic Linear Systems in the $(\max, +)$ Algebra</i> , J. Mairesse, INRIA, France	257
<i>Cycle Times and Fixed Points of Min-Max Functions</i> , J. Gunawardena, Stanford University, USA	266
<i>The Characteristic Equation and Minimal State Space Realization of SISO Systems in the Max Algebra</i> , B. De Schutter, KU Leuven, Belgium and B. De Moor, KU Leuven, Belgium	273
<i>A Max-Algebra Solution to the Supervisory Control Problem for Real-Time Discrete Event Systems</i> , D.D. Cofer, University of Texas, USA and V.K. Garg, University of Texas, USA	283
<i>Stable Earliest Starting Schedules for Periodic Job Shops: a Linear System Approach</i> , T.-E. Lee, KAIST, Korea	290
<i>Time Discrete and Continuous Control Problems Convergence of Value Functions</i> , S.N. Samborski, Université de Caen, France	297

<i>Bellman Processes</i> , M. Akian, INRIA, France, J.-P. Quadrat, INRIA, France and M. Viot, École Polytechnique, France	302
<i>Maslov Optimisation Theory: Stochastic Interpretation, Particle Resolution</i> , P. Del Moral, LAAS-CNRS, France, J.-C. Noyer, LAAS-CNRS, France and G. Salut, LAAS-CNRS, France	312
<i>Network Methods for Endomorphisms of Semi-Modules over Min-Plus Algebras</i> , P.I. Dudnikov, Ukraine and S.N. Samborski, Université de Caen, France . . .	319
<i>Subdirect Sum Decomposition of Finite Dimensional Pseudomodules</i> , E. Wagneur, École des Mines de Nantes, France	322

Hybrid Systems

<i>The Algorithmic Analysis of Hybrid Systems</i> , R. Alur, ATT, USA, C. Courcoubetis, University of Crete, Greece, T. Henzinger, Cornell University, USA, P. Ho, Cornell University, USA, X. Nicollin, VERIMAG, France, A. Olivero, VERIMAG, France, J. Sifakis, IMAG, France and S. Yovine, VERIMAG, France	331
<i>A Unified Framework for Hybrid Control</i> , M.S. Branicky, MIT, USA, V.S. Borkar, Indian Institute of Science, India and S.K. Mitter, MIT, USA	352
<i>Reasoning about Hybrid Systems with Symbolic Simulation</i> , S. Narain, Bellcore, USA	359
<i>Simple Hybrid Control Systems – Continuous FDLTI Plants with Quantized Control Inputs and Symbolic Measurements</i> , J. Raisch, University of Toronto, Canada	369
<i>Controllability and Control-Law Synthesis of Linear Hybrid Systems</i> , M. Tittus, Chalmers University of Technology, Sweden and B. Egardt, Chalmers University of Technology, Sweden	377

Simulation and Perturbation Analysis

<i>Sample-Path-Based Continuous and Discrete Optimization of Discrete Event Systems: From Gradient Estimation to “Rapid Learning”</i> , C.G. Cassandras, University of Massachusetts, USA	387
<i>Infinitesimal Perturbation Analysis of Generalized Semi-Markov Processes: A Tutorial</i> , X.-R. Cao, Hong Kong University of Science and Technology, Hong Kong	401
<i>A Tutorial Overview of Optimization via Discrete-Event Simulation</i> , M.C. Fu, University of Maryland, USA	409
<i>Parallel Simulation of Discrete Event Systems</i> , R.M. Fujimoto, Georgia Institute of Technology, USA	419
<i>On the Existence and Estimation of Performance Measure Derivatives for Stochastic Recursions</i> , P.W. Glynn, Stanford University, USA and P. L’Écuyer, Université de Montréal, Canada	429
<i>Perturbation Analysis for the GI/G/1 Queue with Two Priority Classes</i> , N. Miyoshi, Kyoto University, Japan and T. Hasegawa, Kyoto University, Japan	436

<i>Supply Management in Assembly Systems: The Case of Random Lead Times</i> , C. Chu, LORIA, France, J.-M. Proth, LORIA, France, Y. Wardi, Georgia Institute of Technology, USA and X. Xie, LORIA, France	443
<i>Simulation Trees for Functional Estimation via the Phantom Method</i> , F. Vazquez- Abad, Université de Montréal, Canada and P. L'Écuyer, Université de Montréal, Canada	449
<i>Infinitesimal Perturbation Analysis for Discrete Event Systems with Discrete Life- time Distributions</i> , B. Heidergott, University of the Bundeswehr, Germany . .	456

Large Discrete Event Systems and Network Stability

<i>Loss Networks in Thermodynamic Limit</i> , D. Botvich, Dublin City University, Ireland, G. Fayolle, INRIA, France and V. Malyshev, INRIA, France	465
<i>A Survey of Markovian Methods for Stability of Networks</i> , D. Down, University of Illinois, USA and S. Meyn, Coordinated Science Laboratory, USA	490
<i>Stationary Regime and Stability of Free-Choice Petri Nets</i> , F. Baccelli, INRIA , France and B. Gaujal, INRIA, France	505
<i>Allocation Sequences of Two Processes Sharing a Resource</i> , B. Gaujal, INRIA, France	516
<i>Stability Criteria for yet Another Class of Multidimensional Distributed Systems</i> , L. Georgiadis, IBM, USA and W. Szpankowski, Purdue University, USA	523
<i>Flow Control of a Virtual Circuit</i> , A.K. Agrawala, University of Maryland, USA, D. Sanghi, University of Maryland, USA and L. Shi, University of Maryland, USA	531
<i>Stochastic Scheduling of Precedence Graphs</i> , L. Finta, INRIA, France and Z. Liu, INRIA, France	538

Manufacturing Systems

<i>Management of Manufacturing Systems Based on Petri Nets</i> , J.-M. Proth, LORIA, France	545
<i>Approximate Closed Queuing Network Model of a Manufacturing Cell with a Batch Material Transporter</i> , S.Y. Ruan, Rutgers College of Engineering, USA and M.A. Jafari, Rutgers College of Engineering, USA	558
<i>Optimizing the Transient Behavior of Hedging Control Policies in Manufac- turing Systems</i> , S. El-Férik, École Polytechnique de Montréal, Canada and R. Malhamé, École Polytechnique de Montréal, Canada	565
<i>Finding Optimal Number of Kanbans in a Manufacturing System via Stochastic Approximation and Perturbation Analysis</i> , H. Yan, Chinese University, Hong Kong, X. Y. Zhou, Chinese University, Hong Kong and G. Yin, Wayne State University, USA	572
<i>Performance Evaluation of a Generalized Kanban System with a General Arrival Process of Demands</i> , M. Di Mascolo, LAG-ENSIEG, France	579
<i>Hoist Scheduling Problem in a Real Time Context</i> , J. Lamothe, CERT, France, M. Corregge, CERT, France and J. Delmas, CERT, France	586

<i>On Controlling a Class of Assembly Systems with Alternative Production Routing,</i> J.-M. Proth, LORIA, France, L. Wang, LORIA, France and X. Xie, LORIA, France	593
<i>Planification Hiérarchisée de la Production : Agrégation du Temps et Cohérence,</i> G. Fontan, LAAS-CNRS, France, G. Hetreux, LAAS-CNRS, France and C. Merce, LAAS-CNRS, France	600
<i>Multi-Site Planning: A Centralised or a Distributed Approach?,</i> C. Thierry, CERT, France, P. Le Page, CERT, France, N. Chapeaublanc, CERT, France and G. Bel, CERT, France	609
<i>Algorithms for Simultaneous Scheduling of Machines and Vehicles in a FMS,</i> T. Sawik, University of Mining and Metallurgy, Poland	616