CONTENTS

| Forward Alty, J.L., and Mikulich, L.I. | |
|---|-----|
| Artificial Intelligence and Industry Alty, J.L., and Mikulich, L.I. | 1 |
| Section 1 - Plenary Papers | 8 |
| Theses on Information Technology of the Nineties. Schuett, D. | 8 |
| Al and Concurrent Engineering in Factories of the Future. Dwivedi, S.N., and Lanka, R. | 20 |
| A Model of Behaviour for Machine Learning Ganascia, J-G., Puget, J.F., and Helft, N. | 33 |
| Real-Time Supervision for Production Management Activities. Laurent, J-P., and Ayel, J. | 40 |
| Applied Robotics in Robotized Flexible Manufacturing Systems Vukobratovic, M. | 51 |
| Multiple Meta-Level Architecture and Man-Machine Interaction in a Knowledge Based System Ohsuga, S. | 67 |
| Section 2 - Expert Systems: Knowledge Acquisition | 76 |
| Topological Knowledge Acquisition in Chemical Databases Biedka, K. | 76 |
| Knowledge Acquisition Method of Expert System for Analysis of Financial Standing of an Enterprise Lasek, M., and Peczkowski, M. | 81 |
| SIZIF - The System of Knowledge Acquisition from Experimental Facts Naidenova, K.A., and Polegaeva, J.G. | 87 |
| Natural Language Processor Tunable to Different Subject Domains Grigoryev, O.G., and Reizin, N.L. | 93 |
| Automatic Generation of Knowledge in Expert Systems Ezhkova, I.V. | 96 |
| Section 3 - Knowledge Representation and Validation | 100 |
| A Symbol-Based Approach in Term Processing Neiman, V.S. | 100 |
| The Calculus of Metric Temporal Relations as a Knowledge Representation Framework for Rule-Based Expert Systems | |
| Kirillov : | 106 |

| On the Validation and Consistency of Knowledge Bases: The COVADIS System Rousset, M-C. | 111 |
|--|-----|
| A Process Event Knowledge Model for Industrial Expertise Yakovlev, A.V., and Petrov, A.I. | 115 |
| Artificial Intelligence and Fault Diagnosis: An Approach to the Validation Problem Alty, J.L., and Pearce, D. | 121 |
| A System For Describing a Scene which a Robot Observes and Displays it According to Text in Natural Language Ilyin, G.M., and Ignatova, V.N. | 130 |
| Analytical Forms for Describing a Class of Knowledge Representation and Related Inference Mechanisms of a Reasoning Process. Capkovic, F. | 135 |
| Multi-language Processors for Computer Systems. Voevudko, A.E., and Tsurkov, V.I. | 141 |
| The Simulation of Formal Grammar Constructions by Algebraic Petri Nets with Variable Marking (Variable Structure) Maltsev, P.A. | 146 |
| Data Modelling in a Type System Spyratos, N. | 152 |
| Knowledge Based Systems: Dynamic Aspect Modeling Wolfengagen, V.E., and Yatsuk, V.J. | 162 |
| Information Approach to Design Computational Head of Control Systems Moroz. S.M., and Kuprik, D.S. | 167 |
| Section 4 - Expert Systems: Software Tools | 172 |
| Technological Environment for Expert Systems Development Slissenko, A. | 172 |
| Design and Support Simulation Tools for Computer Aided Systems Information Base (Prolog-Realization) | |
| Khanenko, V.N., Baranovskaya, T.N., and Teremenko, G.Yu. | 176 |
| Blackboard Architecture for Industrial and Management Expert Systems Stawicki, J., Olszewski, K., and Nalbach, M. | 180 |
| BB_POL - A Blackboard Expert System Shell for Industrial and Management Applications | |
| Nalbach, M., Olszewski, K., and Stawicki, J. | 186 |
| DDSS: A Knowledge-Based Environment for Computer Aided Control System Design: Conception and Implementation Lunze, J., and Scheffler, H-P. | 192 |
| Development of a Knowledge-Processing Module for Integrating Empirical Knowledge | |
| Kochan D. and Oelschlegel I | 198 |

| The ARIES Environment (V 4.00) for the Development of Knowledge Based | |
|--|-----|
| Expert Systems de la Cruz, A.V., Valdes, J.J., Perez, A., Jocik, E., Balsa, J., and Rodrigues, A. | 203 |
| Intelligent Programming Environments for CAD Matskin, M.B. | 209 |
| Management Consulting Expert System (MCES) Polyakov, V.G. | 213 |
| Section 5 - Applied Expert Systems | 218 |
| Speech Interface for Information Input in Expert, Information Retrieval and Control Systems Kelmanov, A.V., and Khamidullin, S.A. | 218 |
| Diagnostic Expert Systems for Digital Electronics Sgurev, V., Dochev, D., Agre, G., Dichev, Ch., and Markov, Z. | 220 |
| A Representation and a Planning Method for the Start-up of Continuous Chemical Plants Cauldron, D., and Melin, C. | 225 |
| The Concept of an Expert System for Monitoring and Managing a Flexible Model of Industrial Training Kleimyonov, S.A., and Korovina, A.I | 231 |
| Expert System for Technological Planning Petrova, G.V. | 235 |
| CASS: The Knowledge Based System for Selecting Expert System Building Tools Chekmenev, S.E., and Krasnikova, O.V. | 239 |
| An Expert System for Maintenance Diagnosis Menexiadis, D., and Soenen, R. | 243 |
| Artificial Intelligence Methods in Problems of Control and Technical Diagnosis Bogomolov, S. Ye., Dmitriev, A.K., and Okhtilev, M. Yu. | 248 |
| The Intellectual Design of the Functional Music Bereznaya, I.Y., and Granovskaya, R.M. | 254 |
| Structure of a Knowledge-Based Diagnosis System for Modular Digital Control Systems Madiger, B., and Muller, W. | 257 |
| Expert Systems Supporting the Design of the Measuring Modules and Sections of Automated Research Systems Yeremenko, S.I., Kurbanov, V.G., Gorodetsky, A.E., and Sergeyev, A.G. | 262 |
| An Expert System for Technical Diagnosis Storr, A., Hardtner, M and Wiedmann, H. | 267 |
| Section 6 - Decision Making Systems: Algorithms and Procedures | 276 |
| Bayes Inference and Decision Making in Artificial Intelligence Systems Gorodetsky, V.I. | 276 |

| On the Deductive Approach to the Projecting of Technological Processes in Mechanical Manufacturing Zamov, N.K., and Pshenichny, P.V. | 282 |
|--|-----|
| Learning a Qualitative Model of a Complex System via Data Analysis Pomoroski, D., Staroswieki, M., and Barboucha, M. | 285 |
| Accelerated Speech Recognition Based on Control Pre-Information Strakhovitch, E.V. | 292 |
| Intelligent Programs and Methodological Procedures for Debugging of the Complex Machines Solozhentsev, E.D., Korobitcin, I.A., and Tkachev, N.N. | 296 |
| Inductive Inference Algorithms and their Applications. Lyashenko, N.N. | 302 |
| Difference Algorithms Abilities in Decision Support Systems Nikiforov, V.V. | 308 |
| Methods of Adaptive Logical Recognition and its Application Timopheev, A.V. and Kossovskaya, T.M. | 314 |
| Section 7 - Decision Making Systems: Case Studies | 317 |
| The Model Creation Technology with the SAPFIR System Egorov, M.B., Kashirskaya, E.V., and Utkin, A.A. | 317 |
| Decision Support System for Large-Scale Development Planning in Chemical Industry Barnikow, A., Behrendt, U., Hartmann, K, and Scharni, M. | 323 |
| The Abilities of DSS "POLINA" in the Analysis of Multiple Objective Linear Programming Problems Popchev, I.P., Metev, B.S., and Yordanova, I.T. | 329 |
| An Intelligent CAD System for Structure Design Ming, W., Guofang, J., and Shenqian, L. | 336 |
| Group Simulation Expert System Kaletchits, I.N. | 342 |
| Section 8 - Intelligent Manufacturing Systems: Simulation and Design | 344 |
| Computer-Intelligence Options in Flexible Manufacturing Michelini, R.C., Acaccia, G.M., and Molfino, R.M. | 344 |
| Development of Intelligent Manufacturing Systems Polyakov, A.O. | 350 |
| Scheduling in the Intelligent System AMIGO Tsarevsky, N.A. | 355 |
| Intelligent Neural Networks for Robotic Control Holden, A.D.C. | 361 |
| An Approach to Scheduling Ambroziak, T. | 366 |

| ¥ | t |
|---|---|

| An Approach to Computer-Aided Study of FMS-like Systems Dimirovski, G.M., Iliev, O.L., and Percinkova, B.R. | 372 |
|---|------|
| A Technological Knowledge Model in an FMS Design System Leskin, A.A., and Smirnov, A.V. | 378 |
| The Machine Layout Problem Considering Transport Nets. Richter, P. | 382 |
| Assembly Line Scheduling: A Knowledge Based Approach Zak. E.I. | 388 |
| System for the Digital Processing of Colour Images on Microcomputers Gugushvili, A. Sh., Benashvili, T.G., Jokhadze, P.D., Datiashvili, A.G., Ksovreli, G.G., Kutsiava, V.A., Tatarishvili, T.A., and Khomeriki, Z.A. | 394 |
| Decision Making in the System of Automation of Model Creation "SAPFIR" Ivanistchev, V.V., Marley, V.E., Morozov, V.V. and Tuboltzeva, V.V. | 397 |
| TECHNOMOD: Interactive Integrated System - the Shell for Geometric Modelling and Solution of Physical Problems and Objects on IBM PC XT/AT Boldyrev, A.I., Mihailov, O.V., and Moroz, V.G. | 402 |
| An Approach to the Design of Distributed Control Systems for FMS Belyakova, I.P. | 405 |
| Synthesis of Adaptive Robot Control Systems under Uncertainty Conditions Kuntsevitch, V.M. | 410 |
| Some Problems and Methods of Pre-design Simulation of Automated Shops Khobotov, E.N. | 413 |
| Principles of Intelligent Process Planning System Design Belyanin, P.N. Bobrova, I.V. and Gonzalez-Sabater, A. | 415 |
| Section 9 - Intelligent Manufacturing Systems: Case Studies | 420 |
| An Expert System for Selection of Dispatching Systems to be used in | |
| Flexible Automation of Production Zebrowski, W. | 420 |
| Real Time Production Control System Produs-85 Evseev, O.V. | 426 |
| Intelligent Technological Design Systems Kolchin, A.F., Zykova, S.A, and Pozdneev, B.M. | 431 |
| An Intelligent System for Support for the Early Stages of VLSI Circuit Design and its Knowledge Representation Language Korolyov, V., Garustovitch, L., Vashkevitch, V., Astreiko, A., and Samtsov, O. | 436 |
| The Adaptive-Intelligent Control of Robots and Technological Equipment for Intelligent Manufacturing | 4.40 |
| Timofejev, A.V. | 442 |
| Author Index | 447 |
| Subject Index | 449 |