CONTENTS

VOLUME 2

Manufacturing Information Systems

Track Chair: N. Komoda, University of Osaka, Japan

A Java application based on an EXPRESS model for sharing flexible manufacturing resources data
O. López-Ortega (Mexico)

Transmission performance testing for cooperating processes of an autonomous decentralized manufacturing system
H. Kawamichi, S. Sameshima, K. Kawano, Y. Adachi (Japan)

Resonant load control methods application to high speed machine tool with linear motor
E. Dumetz, F. Vanden Hende, P. J. Barre (France)

Secure collaborative information system for enterprise alliances: a workflow based approach
F. Biennier, J. Favrel (France)

Automatic Generation of Motion Sequence for Error Recovery in Programmable Logic Control Using Plant Information
T. Aoki, T. Suzuki, M. Matsuzaki, S. Okuma (Japan)

Application of IEC 61131-3 For Semiconductor Processing Equipment
T. Sato, E. Yoshida, Y. Kakebayashi, J. Asakura, N. Komoda (Japan)

Intelligible Description Language and its rapid Verification Method for Design Support of Distributed Sequential Control Systems
T. Nakasiba, A. Tsuchiya, Y. Ikkai, N. Komoda, Y. Namioka (Japan)

Modeling of the test workshop controller
C. Gertosio, A. Duchaussoy (France)

Field Device Integration
P. Neumann, R. Simon, C. Diedrich, M. Riedl (Germany)

Industrial Automation with Discrete/Hybrid Systems

Track Chair: M. Silva, University of Zaragoza, Spain

Petri Net Models and Functional Abstractions; Applications to the Design of Automated Manufacturing Systems
R. Zurawsky (USA)

Forrester Diagrams and Continuous Petri Nets: A Comparative View
E. Jiménez, L. Recalde, M. Silva (Spain)

Optimal Control of Warehousing Systems with Simultaneous Crane and Shuttle Optimisation
F. Amato, F. Basile (Italy)
Petri Net Modelling and Performance Analysis of Cluster Tools with Chamber Revisiting
W.M.Zuberek (Canada)

Formal modelling and verification in the software engineering Framework of IEC61499: a way to self-verifying systems
V.Vyatkin, H.M Hanish (Germany)

I-SS: Integrated Supervision Systems Approach based on Interactive Components
O.C.Contreras N., J.L De La Roza, J.M.Frigola (Spain)

Implementing Hybrid Automata for Developing Industrial Control Systems
N.Van Hien, T.Soriano (France)

Coloured Petri Net Simulator: A Generic Tool for Production Planing
M.E.Narciso, M.A.Piera (Spain)

Modelling of Hybrid Supervisory Systems using UML and Petri Nets
P.Eigi Miyagi, E.Villani, N.Maruyama (Brazil)

**Real-time and Embedded Technology**
Track Chair: Y.Trinquet, IRCCy Nantes, France

Developing CAN based networks on RT-Linux
P. Mendoza, J.Vila, I.Ripoll, S.Terrasa, P.Pérez (Spain)

Wireless transmissions in multipath environments benefit from direct sequence spread spectrum techniques
R.Lionti, D. Noguet, N. Daniele, D.Chagnot-Auclair (France)

An Embedded Core for the 2D Wavelet Transform
C.Diou, L.Torres, M.Robert (France)

A Framework for Real-time CORBA Using Synchronous Active Objects
A.J Restrepo-Zea (Switzerland)

Discrete Time Approach of Time Petri Nets for Real-Time Systems Analysis
O.H. Roux, D. Delfieu, P. Molinaro (France)

**Enterprise Integration**
Track Chair: H.Rowlands, University of Wales, United Kingdom

Activity Planning and Management in Business Organizations
I.Besembel, J.C.Hennet, (Venezuela, France)

PROMAN, Planning, Production Management and Control System with Intelligent Interfaces and Advanced Forecast
S.Bori, J.Lores, R.Pascual, E.Roures (Spain)

Grand challenges of enterprise integration
W.D.Brosey, R.E.Neal, D.F.Marks (USA)

Supply management with concave cost
S.S.Chauhan, J.M.Proth (France)
Generation of Role-specific Information for an Enterprise Integration Framework using XML Descriptions  
M.Wollschlaeger, C.Diedrich, M.Thron (Germany)  

Authentication and enterprise secured data storage  
N.Cottin, B.Mignot, M.Wack (France)  

Design and performance analysis of middleware-based distributed control systems  
W.Kang, H.Kim, H.S.Park (South Korea)  

The future IT Systems for Virtual Enterprises: Product-Oriented Agent Providers?  
N.B.Szirbik, H.S.Jagdev (Netherlands, United Kingdom)  

A Simulation Study to Assess the Impact of Internet in the Supply Chain Management  
A.Crespo Marquez, O.Rubiano Ovalle (Spain, Columbia)  

Video transfer optimisation for e-commerce applications  
T.Murino, G.Paduano, L.C.Santillo (Italy)  

Micromachines  
Track Chair: D.Collard, ISEN Lille, France  

Microstereolithography: Concepts and applications  
A.Bertsch, P.Bernhard, P.Renaud (Switzerland)  

Micro-scale rapid prototyping by stereolithography  
S.Monneret, C.Provin, H.Le Gall (France)  

Design and fabrication of arrays of nanoelectromechanical resonators for parallel detection of biomolecular interactions  
C.Bergeaud, E.Cocheteau, M. Guirardel, L. Nicu, B.Belier (France)  

Special session: Advanced Issues in Supply Chain Management  
Session Organizer: Y.Ikkai, University of Osaka, Japan  

Evaluation of Optimal Ordering Method in Combination of Forecast and Order Based Production  
K.Mitsukuni, M.Koyama, N.Komoda (Japan)  

The latest tendency of SCM patents utilizing the information technologies  
H.Murayama (Japan)  

An Evaluation System of Logistic Scenarios for Withdrawal in the Disposal of Waste Personal Computers with RF-ID Tag  
M.Yumoto, T.Nozaki, N.Komoda, S.Soga (Japan)  

Application of Compatibility with Delivery and Manufacture in Material Industry  
K.Horiuchi, T.Takii, H.Ikeda, Y.Ikkai (Japan)
Special session: Emerging Technologies in Scheduling

Session Organiser: Y.Ikkai, University of Osaka, Japan

A Rapid Planning Method of Practicable Solution with Conversational Function of Constraints Relaxation for A Process Ordering Problem Using Spare Jobs
K.Ishihara, S.Honda, Y.Ikkai, N.Komoda, H.Takahashi, H.Ikeda (Japan)

Modeling and Genetic Solution of a Class of Flexible Job Shop Scheduling Problems
H.Tamaki, T.Ono, H.Murao, S.Kitamura (Japan)

A Genetic Algorithm Approach to Large Scale Combinatorial Optimization Problems in the Advertising Industry
K.Ohkura, T.Igarashi, K.Ueda, S.Okauchy, H.Matsunaga (Japan)

A Bilateral Negotiation Method Using Satisfying Level with Knowledge of Purpose Analysis
H.Oka, T.Hasegawa, Y.Ikkai, N.Komoda (Japan)

Special session: Advances in Smart Sensor Modelling and Design

Session organizer: C.Barat, Universite d'Evry, France

A Correlation Retina for Real-Time Pattern Recognition
B.Lamalle, G.Cathebras, L.F.C.Lew Yan Voon, P.Goria, B.Bellach, O.Aubreton (France)

Ultrasonic smart sensor design for a distributed perception system
E.Dekneuvel, F.Muller, T.Pitarque (France)

Towards a versatile ultrasonic sensor
C.Barat, E.Colle, N.Ait Oufroukh (France)

An Intelligent Gas Sensor Application For The Discrimination of Forane 134a and Carbon Dioxide Gas Concentrations: The Effect of Relative Humidity
C.Delpha, M.Lumbreras, M.Siadat (France)

Fuzzy-Based Intelligent Sensors: Modelling, Design, Application
E.Benoit, R.Dapoigny, L.Foulloy (France)

How to introduce a priori visual and behavioural knowledge for autonomous and mobile robots to operate in known environments
P.Bonnin, O.Stasse, V.Hugel, P.Blazevic (France)

Special session: Estimation and Diagnosis of Manufacturing Systems

Session Co-organizers: A. Guia & C.Seatzu, Universita di Cagliari, Italy

Multi-layer State Observers for Condition Systems
Y.Gong, L.E.Holloway (USA)

Fault Treatment with Net Condition/Event Systems: a First Approach
T.Both, H.M.Hanish, J.Jorn (Germany)

Fault Diagnosis in an Intermodal Container Terminal
C.Degano, A.Di Febbraro, P.Fornara (Italy)
Deadlock recovery of Petri net models controlled using observers
F.Basile, P.Chiacchio, A.Guia, C.Seatzu (Italy)

Special session: Multi-agent-Based Factory Automation: Industrial Applications of Intelligent Production Systems
Session Co-organizers: R.Schoop & A.Colombo, Schneider Electric Automation Business, Germany

Fipa-enabled holonic enterprise
M.Ulieru (Canada)

A multi-Agent Based Cell Controller
P.Leitao, F.Restivo, G.Putnik (Portugal)

Fitting Autonomy and Mobile Agents
W.J.Viera, L.M.Camarinha-Matos, L.Octario Castolo (Portugal)

An Agent-based Approach to the Control of Flexible Production Systems
S.Bussmann, K.Schild (Germany)

A solution to holonic control systems
A.W.Colombo, R.Neubert, R.Schoop (Germany)

Special session: Ethernet TCP/IP in Automation
Session Organiser: M.Felser, AUS Berne, Switzerland

Ethernet TCP/IP in Automation: A Short Introduction to real-time Requirements
M.Felser (Switzerland)

Ethernet/IP-Industrial Protocol
P.Brooks (Belgium)

Interface for Distributed Automation IDA
J.Camerini, A.Chauvet, M.Brill (France,Germany)

PROFInet - Linking Worlds
M.Popp, P.Wenzel (Germany)

IONA Europe e.V – What the umbrella organisation for industrial Ethernet accomplishes
M.Buchwitz, A.Klostermeyer, K.Lorentz (Germany)

Special session: Machine Vision on Robotics
Session Organizer: A.Grau, UPC Barcelona, Spain

Localization of Human Faces Fusing Color Segmentation and Depth from Stereo
F.Moreno, J.Andrade-Cetto, A.Sanfeliu (Spain)

Generation of synthetic views for teleoperation in industrial processes
E.X.Martin i Rull, A.B.Martinez Velasco (Spain)

An Integral Automation of Industrial Fruit and Vegetable Sorting by Machine Vision
F.Pla, J.M.Sanchiz, J.S.Sánchez (Spain)
Robot Navigation by Visual Local Symmetry Reflection Axes
P. Mares, A. Grau, A. B. Martinez (Spain)

Special session: Industrial Automation
Session Organizer: J. Fuertes, UPC Barcelona, Spain

Design and implementation of a Java-based industrial control system configuration tool
A. Fay, R. Drath, P. Bort (Germany)

An Industrial 3D Graphical Interface for Process Control
B. Bascle, K. Hampel, S. Moritz, N. Navab, B. Baxter, X. Zhang (USA)

Implementing Can Seaming Supervisory Control Using Machine Vision
P. Marín, C. A. Sigüenza, V. Pastoriza, M. Santamaria, E. Martinez (Spain)

Robust Voice Recognition as a Distributed Service
J. C. Díaz Martín, J. M. Rodríguez García, J. L. García Zapata, P. Gomez Vilda (Spain)

Audio Compression with Desirable Attributes for Factory Automation
X. Chen, K. Lee, Y. K. Chan, Y. L. Yu (China)

Mobile Computing and Industrial Augmented Reality for Real-time Data Access
X. Zhang, Y. Genc, N. Navab (USA)

Special session: Microrobotics in Manufacturing
Session Organizer: J. Samitier, UPC Barcelona, Spain

Large-Scale Nanorobotic Factory Automation Based on the NanoWalker Technology
S. Martel, S. Riebel, T. Koker, M. Sherwood, I. Hunter (USA, Germany, Canada)

The Scanning Electron Microscope as Sensor System for Mobile Microrobots
F. Schmeockel, H. Worn, M. Kiefer (Germany)

High Accuracy Piezoelectric-Based Microrobot for Biomedical Applications

Micro parallel robot MIPS for medical applications
J. P. Merlet (France)

Industrial practice session
Session Organizer: P. Dallemanagne, Centre Suisse d’Electronique et de Microtechnique, Switzerland

A Laser Tracking System for a Hot Moving Ingot
Z. Su, H. Rowlands, D. John (United Kingdom)

IEEE1394 “Firewire” System Design for Industrial and Factory Automation Applications
M. Scholles, K. Frommhagen, L. Kleinmann, P. Nauber, U. Schelinski (Germany)

Automated Visual Inspection to assembly of Frontal Airbag Sensors of Automobiles
J. Fernandez, D. Benchetrit, D. Gachet (Spain)
Work in progress session

Push/pull Based Production Plan & Schedule Strategy
G.Xiong, G-Y. Xiong, T.R Nyberg (Finland)

Dynamic controller of BIPMAN
P. Gorce, M. Guihard (France)

Nanoradian digital stabilization of a suspended table for scientific experiments
E. Canuto, S. Tonani (Italy)

Operative Architecture Design and Modelling for the Validation of Real-Time Applications
S. Faucou, A.M. Déplanché, Y. Trinquet (France)

A Centralized Translation Interface Based on the PSIM Ontology
J. Goussenaerts, C. Pelletier, N. Sziribik (Netherlands)

An architecture for dependable autonomous robots
F-F. Ingrand, R. Chatlia, R. Alami (France)

Decentralised control and self organisation in flexible manufacturing systems
P. Pujo, F. Ounnar (France)

Initial Research on Virtual Pulp & Paper Enterprise
G. Xiong, G-Y. Xiong, T.R Nyberg, M. Lehtimäki (Finland)

Adaptive Observers Based Fault Detection and Isolation for an Alcoholic Fermentation Process
N. Kabbaj, B. Dahhou, G. Roux, M. Polit (France)

Partial and Total Order Relations for Supervisory Control of Hybrid Systems
N. Rakoto Ravalontsalama (France)

A Rapid Controller Development Methodology and Architecture for Automated Manufacturing Systems
E. Freund, O. Stern (Germany)

Smart Field Bus Nodes with Programmable Sensor Interfaces
H. Beikirch, M. Voss (Germany)

Middleware-based Solution for Enterprise Information Integration
G. Xiong, G.Y. Xiong, A. Litokorpi, T.R. Nyberg (Finland)

Farmwork path planning for field coverage with minimum overlapping
S. Fabre, P. Souères, M. Taix, L. Cordesses (France)

Measurement of the photometric distribution of light sources by deflectometric techniques
M. J. Arranz, J. Arasa, S. Royo, J. Caum, (Spain)

Integration of Java Processor Core JSM into SmartDev(ices)
F. Golatowski, S. Preuss, H. Ploog, T. Geithner, C. Cap, D. Timmermann (Germany)

On the Project Scheduling Problem under Stored Resource Constraints
E. Kh. Gimadi, V. V. Zalyubovsky, S. V. Sevastianov (Russia)
An Integrated Application Framework for a Cluster Tool Controller for Semiconductor Manufacturing
T.E.Lee, J.H.Lee (South-Korea) 775

High Precision and Non Obstrusive Displacement Measurement Sensor for Intelligent Robots and Systems
Y.Joulin, O.Parriaux, F.Pigeon (France) 779

Multi-Agent environment for process planning elaboration
P.Depincé, H.Amara, J.Y.Hascoet (France) 783

A micromechanical focusing device for artificial vision
E.Gallois-Pichonat, J.C.Jeannot, M.De Labachelerie (France) 787

Diagnostic Assistance Using Oriented Vision System for High Velocity Tooling Machines
D.Merad, J.Triboulet, A.Chedebois, M.Mallem, C.Fioroni, J.R.Passemard (France) 791

Design of an autonomous micro robot
P.Basset, L.Buchaillot, A.Kaiser, D.Collard (France) 795

Performance evaluation of an SnO₂-based sensor array for the concentration determination of H₂S / CO₂ mixtures in dry or wet air
O.Helli, M.Lumbreras, M.Siadat (France) 799

Author's Index 803