

2011 IEEE 16th Conference on Emerging Technologies & Factory Automation

(ETFA 2011)

**Toulouse, France
5-9 September 2011**

Pages 1-794



**IEEE Catalog Number: CFP11ETF-PRT
ISBN: 978-1-4577-0017-0**

TABLE OF CONTENTS

TRACK1-1: INFORMATION TECHNOLOGY IN AUTOMATION - RECONFIGURATION AND REUSE

An OPC UA Interface for an Evolvable ISA88 Control Module.	1
<i>Dirk Van Der Linden, Herwig Mannaert, Wolfgang Kastner, Vincent Vanderputten, Herbert Peremans, Jan Verelst</i>	
Highly Reconfigurable Production Systems Controlled by Real-Time Agents.	10
<i>Daniel Schütz, Markus Schraufstetter, Jens Folmer, Birgit Vogel-Heuser, Thomas Gmeiner, Kristina Shea</i>	
Requirements on Engineering Tools for Increasing Reuse in Industrial Automation.	18
<i>Nasser Jazdi, Camelia Maga, Peter Göhner</i>	
Risk Minimization in Modernization Projects of Plant Automation – A Knowledge-Based Approach by Means of Semantic Web Technologies	25
<i>Martin Strube, Stefan Runde, Alexander Fay, Helmut Figalist</i>	

TRACK2-1: INDUSTRIAL COMMUNICATION SYSTEMS - ADVANCES IN WIRED NETWORKS

Bandwidth-Efficient Burst Error Tolerance in TDMA-based CAN Networks.	33
<i>Michael Short, Imran Sheikh, Syed Aley Imran Rizvi</i>	
Schedulability Analysis of CAN with Non-abortable Transmission Requests.	41
<i>Dawood Ashraf Khan, Nicolas Navet, Robert I. Davis</i>	
A Proposal to Integrate Process Data Communication to IEEE 802.1 Audio Video Bridging (AVB).	49
<i>Jahanzaib Imtiaz, Jürgen Jasperneite, Sebastian Schriegel</i>	
Fault-Tolerant Ethernet Networks with Audio and Video Bridging.	57
<i>Oliver Kleineberg, Peter Fröhlich, Donal Heffernan</i>	

TRACK3-1: REAL-TIME AND (NETWORKED) EMBEDDED SYSTEMS - REAL-TIME COMMUNICATIONS

Analysis and Optimization of the MTU in Real-Time Communications over Switched Ethernet.	65
<i>Moris Behnam, Ricardo Marau, Paulo Pedreiras</i>	
Extending Schedulability Analysis of Controller Area Network (CAN) for Mixed (Periodic/Sporadic) Messages.	72
<i>Saad Mubeen, Jukka Mäki-Turja, Mikael Sjödin</i>	
Measurements on an Industrial Wireless HART Network Supporting PROFI-safe: A Case Study.	82
<i>Johan Åkerberg, Frank Reichenbach, Mikael Gidlund, Mats Björkman</i>	
An Explicit GTS Allocation Algorithm for IEEE 802.15.4.	90
<i>Jianxin Chen, Luis Lino Ferreira, Eduardo Tovar</i>	

TRACK4-1: AUTOMATED MANUFACTURING SYSTEMS - MODELING AND CONTROL USING PETRI NETS

On the Deadlock Analysis of Multithreaded Control Software.	98
<i>Juan-Pablo López-Grao, José-Manuel Colom</i>	
Translating Robot Programming Language Flow Control into Petri Nets.	106
<i>Juergen Rossmann, Kevin Eilers</i>	

WIP5: INDUSTRIAL CONTROL

YARN Hairiness Determination Using Image Processing Techniques.	113
<i>Vitor Carvalho, Filomena Soares, Rosa Vasconcelos, Michael Belsley, Nuno Gonçalves</i>	
Assessment of Ziegler-Nichols Tuned Loops Using Control Performance Monitoring Indices.	117
<i>Daniel Gómez, Javier Bécarea, José R. Janeiro, Lázaro Gorostiaga, Enrique Baeyens, Eduardo J. Moya</i>	

Periodic Reset Control of an In-line pH Process	121
<i>Félix Román Pérez, Alfonso Baños, Joaquín Cervera</i>	
A Virtual Metrology System for Predicting CVD Thickness with Equipment Variables and Qualitative Clustering	125
<i>Gian Antonio Susto, Alessandro Beghi, Cristina De Luca</i>	
Control Design for Machine Tools Using Domiciano, an IDE Based on Software Components	129
<i>Carlos Catalán, Félix Serna, Tamara Civera, Alfonso Blesa, Josep Maria Rams</i>	
TAILOR-Made Small Simulator for Drum Boiler Control Based on Linear Techniques	133
<i>Juan J. Gude, Luis Vazquez-Seisdedos</i>	
Industrial Embedded Model Predictive Controller Platform	137
<i>Monika Wenger, Reinhard Hametner, Andreas Voigt, Alois Zoitl</i>	
Modeling Heat Exchanger by FDM and FEM in C# and Consol Multiphysics	141
<i>Stepan Ozana, Martin Pies, Radovan Hajovsk, Lukas Skovajsa</i>	
Unfalsification Based Fault Tolerant Controller	145
<i>Fernando Coito, Luis Brito Palma</i>	
Towards Fault Detection in Singular Leontief Production Models	149
<i>Fotis Koumboulis, Dimitrios Fragkoulis, Panagiotis Arsenos</i>	
Tuning PCA Controllers based on Manual Control Data	153
<i>Luis Brito Palma, Fernando Vieira Coito</i>	

WIP6&7: INTELLIGENT ROBOTS & SYSTEMS, COMPUTATIONAL INTELLIGENCE

A Reconfigurable Multi-Touch Framework for Teleoperation Tasks	157
<i>Gianluca Paravati, Andrea Sanna, Fabrizio Lamberti, Cesare Celozzi</i>	
An Heuristic for Trajectory Generation in Mobile Robotics	161
<i>Pedro Fonseca, António Jose Neves, José Luis Azevedo, João Silva</i>	
Analyzing Energy Consumption of Industrial Robots	165
<i>Moritz Chemnitz, Gerhard Schreck, Jörg Krueger</i>	
Extending a Smart Wheelchair Navigation by Stress Sensors	169
<i>Margarida Urbano, José Alberto Fonseca, Urbano Nunes, Heimo Zeilinger</i>	
TDOA Map Adaptation in Sound Source Localization	173
<i>Dohyung Hwang, Jongsuk Choi</i>	
Towards Competitive Commercial Autonomous Robots: The Configuration Problem	177
<i>Morten Kjærgaard, Nils Axel Andersen, Ole Ravn, Peter A. Kristensen</i>	
Biomedical Device for Spasticity Quantification Based on the Velocity Dependence of the Stretch Reflex Threshold	181
<i>João Ferreira, Vitor Moreira, José Machado, Filomena Soares</i>	
Markerless Gesture-Based Motion Control and Programming of Industrial Robots	185
<i>Jens Lambrecht, Martin Kleinsorge, Jörg Krüger</i>	
New Approach on Bearing-only SLAM for Indoor Environments	189
<i>Edmundo Guerra, Yolanda Bolea, Antoni Grau, Rodrigo Munguía</i>	

TRACK1-2: INFORMATION TECHNOLOGY IN AUTOMATION - VERIFICATION VALIDATION AND TEST

A Model-driven Engineering Approach to Formal Verification of PLC Programs	193
<i>Jean-Marie Farines, Max H. de Queiroz, Vinicius G. Da Rocha, Ana Maria Carpes, François Vernadat, Xavier Crégut</i>	
Generating and Validating Product Instances in IEC 61131-3 from Feature Models	201
<i>Nikolaos Papakonstantinou, Seppo Sierla, Kari Koskinen</i>	
Towards Model-Based Test Automation for Embedded Systems Using UML and UTP	209
<i>Padma Iyengar, Elke Pulvermueller, Clemens Westerkamp</i>	
Modeling of Transport Times in Partly Observable Factory Logistic Systems based on Event Logs	218
<i>Thomas Wagner, André Gellrich, Volodymyr Vasyutynskyy, Klaus Kabitzsch</i>	

TRACK2-2: INDUSTRIAL COMMUNICATION SYSTEMS - PERFORMANCE EVALUATION

Evaluation of the Real-Time Properties of Open-Source Protocol Stacks	225
<i>Gianluca Cena, Stefano Scanzio, Adriano Valenzano, Claudio Zunino</i>	

Real-Time Performance of an Open-Source Protocol Stack for Low-Cost, Embedded Systems.....	233
<i>Ivan Cibrario Bertolotti, Tingting Hu</i>	
Non-preemptive Static Priority with Network Calculus.....	241
<i>William Mangoua Sofack, Marc Boyer</i>	
Bandwidth Mapping Algorithms in Distributed Media Control Applications.....	249
<i>Javier Silvestre-Blanes, Paulo Pedreiras, Ricardo Marau</i>	

TRACK3-2: REAL-TIME AND (NETWORKED) EMBEDDED SYSTEMS - DISTRIBUTED REAL-TIME SYSTEMS

Bounding Mode Change Transition Latencies for Multi-Mode Real-Time Distributed Applications.....	257
<i>Mircea Negrean, Moritz Neukirchner, Steffen Stein, Simon Schliecker, Rolf Ernst</i>	
Latency and Freshness Analysis on IMA Systems.....	267
<i>Michaël Lauer, Frédéric Boniol, Jérôme Ermont, Claire Pagetti</i>	
Resolving State Inconsistency in Distributed Fault-Tolerant Real-Time Dynamic TDMA Architectures.....	275
<i>Akramul Azim, Sebastian Fischmeister</i>	
Lowering Traffic without Sacrificing Performance in Networked Control Systems.....	284
<i>Pau Marti, Manel Velasco, Jose Yepez, Enric Xavier Martin</i>	

TRACK4-2: AUTOMATED MANUFACTURING SYSTEMS - MODELING AND VERIFICATION

A Hybrid Model for the Control and the Analysis of Complex Automated Warehouse Systems.....	292
<i>Francesco Basile, Pasquale Chiacchio, Jolanda Coppola</i>	
Dynamic Modeling and Control of a New Automatic Corking Machine for Threaded Plastic Caps.....	300
<i>Roberto Zanasi, Federica Grossi, Nicola Giuliani</i>	
An Approach to the Verification of Material Handling Systems.....	308
<i>Thomas Klotz, Bernd Straube, Eva Fordran, Jürgen Haufe, Frank Schulze, Karsten Turek, Thorsten Schmidt</i>	
Using Ontologies to Capture and Structure Knowledge About Disruptions in Manufacturing Systems: An Immune Driven Approach.....	316
<i>Saber Darmoul, Henri Pierreval, Sonia Hajri-Gabouj</i>	

TRACK1-3: INFORMATION TECHNOLOGY IN AUTOMATION – ENGINEERING

Integration between MES and Product Lifecycle Management.....	323
<i>Anis Ben Khedher, Sébastien Henry, Abdelaziz Bouras</i>	
On the Use of SysML for Manufacturing Execution System Design.....	331
<i>Laurent Piétrac, Arnaud Lelevé, Sébastien Henry</i>	
Concept for Interoperability Between Independent Engineering Tools of Heterogeneous Disciplines.....	339
<i>Rainer Drath, Mike Barth</i>	
Mining Technical Dependencies Throughout Engineering Process Knowledge.....	347
<i>Tobias Jäger, Alexander Fay, Thomas Wagner, Ulrich Löwen</i>	
Towards Model-based Development of Safety-related Control Applications.....	354
<i>Timo Vepsäläinen, Seppo Kuikka</i>	

TRACK3-3: REAL-TIME AND (NETWORKED) EMBEDDED SYSTEMS - REAL-TIME SCHEDULING AND ANALYSIS

Improved Schedulability Analysis of Implicit Deadline Tasks Under Limited Preemption EDF Scheduling.....	363
<i>Michael Short</i>	
Laxity-Based Restricted-Migration Scheduling.....	371
<i>Frédéric Fauberteau, Serge Midonnet, Laurent George</i>	
Scheduling Non-preemptive Hard Real-time Tasks with Strict Periods.....	379
<i>Mohamed Marouf, Yves Sorel</i>	
Dynamic Priority Scheduling of Periodic Tasks with Extended Precedences.....	387
<i>Julien Forget, Emmanuel Grolleau, Claire Pagetti, Pascal Richard</i>	

A Component-Based Framework for Modeling and Analyzing Probabilistic Real-Time Systems.....	395
<i>Luca Santinelli, Patrick Meumeu Yomsi, Dorin Maxim, Liliana Cucu-Grosjean</i>	

TRACK4-3: AUTOMATED MANUFACTURING SYSTEMS – SCHEDULING

New Scheduling Problems with Perishable Raw Materials Constraints.....	403
<i>Jean-Charles Billaut</i>	
Dedicated Constraint Propagation for Job-Shop Problem with Generic Time-Lags.	410
<i>Philippe Lacomme, Marie José Huguet, Nikolay Tchernev</i>	
Closed-loop Production and Automation Scheduling in RMSs.	417
<i>Emanuele Carpanzano, Amedeo Cesta, Andrea Orlandini, Riccardo Rasconi, Anna Valente</i>	
Characterization of All p-approximated Sequences for Some Scheduling Problems.....	425
<i>Jean-Charles Billaut, Pierre Lopez</i>	

TRACK5-1: INDUSTRIAL CONTROL - ADVANCED CONTROL METHODS I

Tracking Improvement Based on the Proxy Control Scheme for Bilateral Teleoperation System under Time-Varying Delays.....	431
<i>Bo Zhang, Alexandre Kruszewski, Jean-Pierre Richard</i>	
Block Decoupling of General Neutral Multi Delay Systems.....	439
<i>Fotis Koumboulis, Nikolaos Kouvakas</i>	
Discrete Time Sliding Mode Control of Robotic Manipulators: Development and Experimental Validation.....	445
<i>Valentino Fossi, Andrea Giantomassi, Gianluca Ippoliti, Sauro Longhi, Giuseppe Orlando, Maria Letizia Corradini</i>	
Comparison of Packet Loss in Nonlinear Networked Control Systems Using Extended Kalman Filter and Unscented Kalman Filter.....	453
<i>Tania De Carli Foletto, Ubirajara Franco Moreno, António M. Lopes</i>	
PID Controller Design for Networked Control Systems.....	460
<i>Luis Recalde, Reza Katebi, Powyan Katebi</i>	
Longitudinal Flight Multi Condition Control Using Robust PID Controllers.....	468
<i>Michael Skarpetis, Fotis Koumboulis, Achilles Ntellis</i>	

WIP2-1: INDUSTRIAL COMMUNICATION SYSTEMS

An Improved Timed Automata Model for Computing Exact Worst-case Delays of AFDX Periodic Flows.....	475
<i>Muhammad Adnan, Jérôme Ermont, Jean-Luc Scharbarg, Christian Fraboul</i>	
Fieldbus Virtualization for Integrated Modular Avionics.....	479
<i>Jong-Seo Kim, Sang-Hun Lee, Hyun-Wook Jin</i>	
Applying PTP to Sntp Time-Gateway for IEC61850 Systems.....	483
<i>Paolo Ferrari, Alessandra Flammini, Stefano Rinaldi, Gunnar Prytz</i>	
Using Automatic Topology Discovery to Diagnose PROFINET Networks.....	487
<i>Michael Jäger, Roman Just, Oliver Niggemann</i>	
Embedding Real Time Ethernet: Examining Feasibility of Separating Bus Master and Application Master in Industrial POWERLINK Implementations.	491
<i>Cyryll Künzle, Damir Bursic, Hans Dermot Doran</i>	
Embedding Real Time Ethernet: EtherNet/IP on Resource Constricted Platforms.....	495
<i>Silvan Fischer, Hans Dermot Doran</i>	
Simplifying the Engineering of Modular PROFINET IO Devices.....	499
<i>Dominik Von Rohr, Max Felser, Markus Rentschler</i>	
Increasing EtherCAT Performance Using Frame Size Optimization Algorithm.....	503
<i>Mladen Knezic, Branko Dokic, Zeljko Ivanovic</i>	
Large PROFINET IO RT Networks for Factory Automation: A Case Study.....	507
<i>Paolo Ferrari, Alessandra Flammini, Francesco Venturini, Antonio Augelli</i>	
Security Aspects of Safety Networks.....	511
<i>Gianluca Cena, Marco Cereia, Adriano Valenzano</i>	
Towards Understanding the Sensitivity of the Reliability Achievable by Simplex and Replicated Star Topologies in CAN.....	515
<i>Manuel Barranco, Julian Proenza</i>	

Designing sfiCAN: A Star-based Physical Fault Injector for CAN.	519
<i>David Gessner, Manuel Barranco, Alberto Ballesteros, Julian Proenza</i>	
Injection of Aggregated Error Flags as a Means to Guarantee Consistent Error Detection in CAN.	523
<i>Guillermo Rodríguez-Navas, Christian Winter, Julián Proenza</i>	
Towards the Integration of Flexible-Time-Triggered Communication and Replicated Star Topologies in CAN.	527
<i>Manuel Barranco, Guillermo Rodríguez-Navas, David Gessner, Julián Proenza</i>	
A CoAP based SOAP Transport Binding.	531
<i>Guido Moritz, Frank Golatowski, Dirk Timmermann</i>	
A Novel Traffic Shaping Algorithm with Delay Jitter Constraints for Real-Time Multimedia Networks.	535
<i>Hairui Zhou, Jian Li, Fei Hu, Guangyu Hu, Ye-Qiong Song, Lina He</i>	
Networked Control Systems: Quality of Service Aware Dynamic Quality of Control Adaptation.	539
<i>Xuan Hung Nguyen</i>	

TRACK1-4: INFORMATION TECHNOLOGY IN AUTOMATION – SEMANTIC TECHNOLOGIES

Semantic Service Discovery and Orchestration for Manufacturing Processes.	543
<i>Matthias Loskyll, Jochen Schlick, Stefan Hodek, Lisa Ollinger, Tobias Gerber, Bogdan Pirvu</i>	
Formal Validation Techniques for Ontology-based Device Descriptions.	551
<i>Federico Rieckhof, Henrik Dibowski, Klaus Kabitzsch</i>	
Unified Sensor Data Provisioning with Semantic Technologies.	559
<i>Christoph Legat, Christian Seitz, Birgit Vogel-Heuser</i>	
A Conceptual Framework for Semantic Case-based Safety Analysis.	567
<i>Olawande Daramola, Tor Stålhane, Thomas Moser, Stefan Biffel</i>	

TRACK2-3: INDUSTRIAL COMMUNICATION SYSTEMS - ADVANCES IN WIRELESS NETWORKS

Experimental Evaluation of the Service Time for Industrial Hybrid (Wired/Wireless) Networks under Non-Ideal Environmental Conditions.	575
<i>Stefano Vitturi, Federico Tramarin, Lucia Seno</i>	
Probabilistic Feasibility Assessment of Real-time Wireless Networks for Factory Automation with Mobile Nodes.	583
<i>Emanuele Toscano, Lucia Lo Bello</i>	
Time-based Localisation in Unsynchronized Wireless LAN for Industrial Automation Systems.	591
<i>Anetta Nady, Reinhard Exel, Patrick Loschmidt, Georg Gaderer</i>	
Heterogeneous Wireless Connectivity for Fixed and Mobile Sensing Applications in Industrial Environments.	599
<i>Jose Antonio Palazon, Miguel Sepulcre, Javier Gozalvez, Jaime Orozco, Oscar Lopez</i>	

WIP3: REAL-TIME AND (NETWORKED) EMBEDDED SYSTEMS

Data Merge: A Data Aggregation Technique for Wireless Sensor Networks.	607
<i>Dimitris Tsitsipis, Sofia-Maria Dima, Angeliki Kritikakou, Christos Panagiotou, Stavros Koubias</i>	
WCET Analysis Considering Shared Memory Bus in COTS-Based Multicores.	611
<i>Dakshina Dasari, Vincent Nelis, Björn Andersson</i>	
An Architecture for Time-Aware Systems.	615
<i>Francesco Fiamberti, Daniela Micucci, Francesco Tisato</i>	
Task Period Selection to Minimize Hyperperiod.	619
<i>Vicent Brocal, Patricia Balbastre, Rafael Ballester, Ismael Ripoll</i>	
Predictable Bus Arbitration Schemes for Heterogeneous Time-Critical Workloads Running on Multicore Processors.	623
<i>Roman Bourgade, Christine Rochange, Pascal Sainrat</i>	
The Click&Find Remote Vehicle Monitoring and Control Platform: Architecture, Interfaces, Applications.	627
<i>Nicola Zingirian, Massimo Maresca, Carlo Valenti</i>	
Development of Embedded Multicore Systems.	631
<i>Celio Estevan Moron, Allen Malony</i>	

SISP: A Lightweight Synchronization Protocol for Wireless Sensor Networks	635
<i>Adrien Van Den Bossche, Thierry Val, Réjane Dalcé</i>	
SIMOTEST: A Tool for Automated Testing of Hybrid Real-Time Simulink Models	639
<i>Frank Böhr, Robert Eschbach</i>	
Enabling Trade-off Analysis of NFRs on Models of Embedded Systems	643
<i>Mehrdad Saadatmand, Antonio Cicchetti, Mikael Sjödin</i>	
Towards Real-Time Scheduling of Virtual Machines Without Kernel Modifications	647
<i>Mikael Åsberg, Nils Forsberg, Thomas Nolte, Shinpei Kato</i>	
Impact of Clock Drifts on CAN Frames Response Time Distributions	651
<i>Aurelien Monot, Nicolas Navet, Bernard Bavoux</i>	
Knowledge Based Actor to Actor Coordination in Wireless Sensor and Actor Networks	655
<i>Sofia-Maria Dima, John Gialelis, Stavros Koubias</i>	
Extending Response-Time Analysis of Controller Area Network (CAN) with FIFO Queues for Mixed Messages	659
<i>Saad Mubeen, Jukka Mäki-Turja, Mikael Sjödin</i>	
Using Automated Evaluation of Efficiency for Photovoltaic Power Plant	663
<i>Michal Tutsch, Petr Vojcinak, Jiri Koziorek, Michal Skrepek</i>	
A Trace-Based Statistical Worst-Case Execution Time Analysis of Component-Based Real-Time Embedded Systems	667
<i>Yue Lu, Thomas Nolte, Iain Bate, Liliana Cucu-Grosjean</i>	
Towards Resource Sharing by Message Passing among Real-Time Components on Multicores	671
<i>Farhang Nemati, Rafia Inam, Thomas Nolte, Mikael Sjödin</i>	
Achieving Reconfigurable Service Oriented Applications Using Model Driven Engineering	675
<i>Aintzane Armentia, Isabel Sarachaga, Oier García De Albéniz, Elisabet Estévez, Aitor Aguirre, Margarita Marcos</i>	
An Industrial Deployment of a Real Time Power Aware Scheduler	679
<i>Nikos Anastasiadis, Detlef Scholle, Johan Fredriksson, Joel Huselius</i>	
Temporal Partitioning for Mixed-Criticality Systems	683
<i>Hyun-Wook Jin, Sanghyun Han</i>	
Safety Services in Infrastructure Based Vehicular Communications	687
<i>Tiago Meireles, José Fonseca</i>	

TRACK4-4: AUTOMATED MANUFACTURING SYSTEMS - FUZZY THEORY AND OPTIMIZATION

State Estimation of Partially Observable DES Using Fuzzy Timed Petri Nets	691
<i>Juan Carlos González Castolo, Ernesto Lopez-Mellado</i>	
Fuzzy Tactical Project Planning: Application to Helicopter Maintenance	699
<i>Malek Masmoudi, Erwin Hans, Alain Haït</i>	
Simulation-Based NSGA-II Approach for Multi-Unit Process Plans Generation in Reconfigurable Manufacturing System	707
<i>Bensmaine Abderrahmane, Dahane Mohammed, Lyes Benyoucef</i>	
Sheet-Metal Press Line Parameter Tuning Using a Combined DIRECT and Nelder-Mead Algorithm	715
<i>Bo Svensson, Nima K. Nia, Fredrik Danielsson, Bengt Lennartson</i>	

TRACK5-2: INDUSTRIAL CONTROL - INDUSTRIAL CONTROL AND AUTOMATION

Implementation of Fuzzy Logic Control Based on PLC	723
<i>Jiri Kocian, Jiri Koziorek, Miroslav Pokorny</i>	
Automatic Extraction of the Fuzzy Control System for Industrial Processes	731
<i>Jerome Mendes, Ricardo Seco, Rui Araujo</i>	
WinCC® Application via OPC Communication to MatLab® for Integrated Systems	739
<i>Daniel Sabin Diaz, Robain De Keyser</i>	
Design and Application of Soft Sensor Using Ensemble Methods	746
<i>Symone Soares, Rui Araújo, Pedro Sousa, Francisco Souza</i>	

TRACK1-5: INFORMATION TECHNOLOGY IN AUTOMATION – APPLICATIONS

State Space Delta GPC for Automotive Powertrain Systems	754
<i>Cristina Budaciu, Andreea Elena Balau, Corneliu Lazar</i>	

RFID Enabled Handheld Solution for Aerospace MRO Operations Track and Trace.....	762
<i>Wei He, Eng Leong Tan, Chi Xu, Yintai Ao, Xuejian Xiao, Eng Wah Lee</i>	
Leveraging OSGi and Eclipse Technologies for a Service Oriented Middleware in Industrial Machines.....	770
<i>Walter Hargassner, Bernhard Dorninger</i>	

TRACK2-4: INDUSTRIAL COMMUNICATION SYSTEMS - INDUSTRIAL COMMUNICATION

SPEED Routing Protocol in 6LoWPAN Networks.....	778
<i>Stefano Bocchino, Matteo Petracca, Paolo Pagano, Marco Ghibaudi, Francesco Lertora</i>	
Optimized XML-based Web Service Generation for Service Communication in Restricted Embedded Environments.....	787
<i>Sebastian Käbisch, Daniel Peintner, Jörg Heuer, Harald Kosch</i>	

TRACK3-4: REAL-TIME AND (NETWORKED) EMBEDDED SYSTEMS - REAL-TIME PLATFORMS

Support for Hierarchical Scheduling in FreeRTOS.....	795
<i>Rafia Inam, Jukka Mäki-Turja, Mikael Sjödin, Seyed M. H. Ashjaei, Sara Afshar</i>	
Towards Adaptive Hierarchical Scheduling of Real-time Systems.....	805
<i>Nima Moghaddami Khalilzad, Thomas Nolte, Moris Behnam, Mikael Åsberg</i>	
Platform-aware Bandwidth-oriented Energy Management Algorithm for Real-Time Embedded Systems.....	813
<i>Mauro Marinoni, Mario Bambagini, Francesco Prosperi, Francesco Esposito, Gianluca Franchino, Luca Santinelli, Giorgio Buttazzo</i>	

TRACK4-5: AUTOMATED MANUFACTURING SYSTEMS - SUPERVISORY CONTROL

Local Modular Supervisory Control of DES with Distinguishers.....	821
<i>Marcelo Teixeira, Jose E. R. Cury, Max H. De Queiroz</i>	
Process Tracking by Equivalent States in Modal Supervisory Control.....	829
<i>Gregory Faraut, Laurent Piétraç, Eric Niel</i>	
Requirements for the Benchmarking of Decentralized Manufacturing Control Systems.....	837
<i>Sebastian Schreiber, Alexander Fay</i>	

SS07-1: DISTRIBUTED AUTOMATION SYSTEMS DEVELOPMENT

Object Oriented Extensions of IEC 61131-3 as an Enabling Technology of Software Product Lines.....	845
<i>Nikolaos Papakonstantinou, Seppo Sierla, Kari Koskinen</i>	
An MDD Process for IEC 61131-based Industrial Automation Systems.....	853
<i>Kleanthis Thramboulidis, Georg Frey</i>	
Integration of Control Loops in an UML Based Engineering Environment for PLC.....	861
<i>Gülden Bayrak, Dmitry Renzhin, Birgit Vogel-Heuser</i>	

WIP1: INFORMATION TECHNOLOGY IN AUTOMATION

Dealing with Non-functional Requirements in Distributed Control Systems Engineering.....	869
<i>Timo Frank, Martin Merz, Karin Eckert, Thomas Hadich, Birgit Vogel-Heuser, Alexander Fay, Christian Diedrich</i>	
OPC UA Goes Semantics: Integrated Communications in Smart Grids.....	873
<i>Sebastian Rohjans, Dieter Fensel, Anna Fensel</i>	
Requirements and Obstacles for the Transformation of GRAFCET Specifications into IEC 61131-3 PLC Programs.....	877
<i>Frank Schumacher, Alexander Fay</i>	
Advanced Soft Sensor Technology to be Used for Cold Rolling Mills.....	881
<i>Pavel Ettlér, Kamil Dedecius, Dani Juricic, Aleksander Preglej</i>	
Development of a Method to Analyze the Impact of Manufacturing Systems Engineering on Product Quality.....	885
<i>Matthias Foehr, Arndt Lüder, Thomas Wagner, Tobias Jäger, Alexander Fay</i>	

Passive Supervisor for Railway Fault-Tolerant Ethernet Networked Control Systems	889
<i>Mai Hassan, Ramez Daoud, Hassanein Amer</i>	
Lifecycle Management Related Model Approach for Wireless Automation	893
<i>Martin Wollschlaeger, Alexander Dennert, Lutz Rauchhaupt, David Hasler, Andre Schimschar, Matthias Riedl</i>	
Middleware based Distributed Heterogeneous Simulation for the Steel Industry	897
<i>Rüdiger Zum Beck, Dmitry Kazakov, Cecil Bruce-Boye, Günter Menden, Debbie Assaf Hohl, Natalia Zapata Zapata</i>	
Integrating CCTV Systems into BACnet	901
<i>Christian Mauser, Wolfgang Granzer, Wolfgang Kastner</i>	
Distributed Open Source Control with Industrial Ethernet I/O Devices	905
<i>Filip Andren, Thomas Strasser</i>	
Distributed Component Management Platform for QoS Enabled Applications	909
<i>Aitor Agirre, Marga Marcos, Elisabet Estevez</i>	
Modeling Order Effects on Errors in Object Oriented Modeling for Machine and Plant Automation from an Educational Point of View	913
<i>Birgit Vogel-Heuser, Tina Seidel, Steven Braun, Martin Obermeier, Kerstin Sommer, Christine Johannes</i>	
Teorema: An E-maintenance Platform for Ice Cream Machines	917
<i>Roberto Lazzarini, Cesare Stefanelli, Mauro Tortonesi, Giovanni Virgilli</i>	
Handling Identification and Maintenance Information of Intelligent Field Devices Using Web Based Enterprise Management	921
<i>Roman Frenzel, Robert Lehmann, Martin Wollschlaeger</i>	
Model Based TTCN-3 Testing of Industrial Automation Systems - First Results	925
<i>Barath Kumar, Bjoern Czybik, Juergen Jaspermeite</i>	
An Approach to Refinement Checking of SysML Requirements	929
<i>Denis Makartetskiy, Riccardo Sisto</i>	
Quality Assurance for Data from Low-Tech Participants in Distributed Automation Engineering Environments	933
<i>Richard Mordinyi, Alexander Pacha, Stefan Biffel</i>	

TRACK6-1: COMPUTATIONAL INTELLIGENCE AND MODERN HEURISTICS IN AUTOMATION – DATA ANALYSIS

Identifying Behavior Models for Process Plants	937
<i>Asmir Vodencarevic, Hans Kleine Büning, Oliver Niggemann, Alexander Maier</i>	
Analysis and Simulation of Sales Receipt Data in Supermarkets	945
<i>Clemens Schwenke, Volodymyr Vasyutynskyy, Klaus Kabitzsch</i>	
Cooperative Project Scheduling with Controllable Processing Times: A Game Theory Framework	953
<i>Cyril Briand, Jean-Charles Billaut</i>	

TRACK7-1: INTELLIGENT ROBOTS & SYSTEMS - GUIDANCE, NAVIGATION AND CONTROL

Sliding Mode Control for Robotic Teleoperation System with Haptic Interface	960
<i>Ales Hace, Marko Franc</i>	
Kinematic Cooperation Analysis and Trajectory Teaching in Multiple Robots System for Welding	968
<i>Yahui Gan, Xianzhong Dai</i>	
Formation and Trajectory Tracking of a Class of Nonlinear Systems with Super Twisting Control	976
<i>Carlos López-Limón, Alejandro Cervantes-Herrera, Javier Ruiz-León, Antonio Ramírez-Treviño</i>	
On the Adaptive Performance Improvement of a Trajectory Tracking Controller for Non-Holonomic Mobile Robots	982
<i>John Arvanitakis, George Nikolakopoulos, Demetris Zermas, Anthony Tzes</i>	
An Attitude and Heading Reference System (AHRS) Based in a Dual Filter	989
<i>Rodrigo Munguía, Antoni Grau</i>	

TRACK4-6: AUTOMATED MANUFACTURING SYSTEMS - FLEXIBLE MANUFACTURING SYSTEMS

Stepwise Identification of Automated Discrete Manufacturing Systems	997
<i>Ana Paula Estrada-Vargas, Ernesto Lopez-Mellado, Jean-Jacques Lesage</i>	

Optimal Petri Net Supervisor with Lowest Implemental Cost for Flexible Manufacturing Systems.....	1005
<i>Yufeng Chen, Zhiwu Li, Kamel Barkaoui</i>	
Convenience Analysis and Validation of a Fully Flexible Assembly System.	1011
<i>Giulio Rosati, Maurizio Faccio, Andrea Carli, Aldo Rossi</i>	
Flexible Assembly System for Heat Exchanger Coils.	1019
<i>Aldo Rossi, Giulio Rosati, Stefano Cenci, Andrea Carli, Valerio Giordano Riello, Alberto Foroni, Massimo Mantovani, Luca Zanotti</i>	
Reduced-Order Synthesis of Operation Sequences.....	1027
<i>Mohammad Reza Shoaiei, Sajed Miremadi, Kristofer Bengtsson, Bengt Lemartson</i>	

TRACK5-3: INDUSTRIAL CONTROL - FAULT DETECTION AND DIAGNOSIS

Design of Residuals in a Model-based Fault Detection and Isolation System Using Statistical Process Control Techniques.	1035
<i>Diego Garcia-Alvarez, Maria Jesus Fuente, G. Sainz</i>	
Symptom Propagation and Transformation Analysis: A Pragmatic Model for System-level Diagnosis of Large Automation Systems.....	1042
<i>Dennis Klar, Michaela Huhn, Jochen Grühser</i>	
Improved Diagnosis by Combining Structural and Process Knowledge.....	1051
<i>Lars Christiansen, Alexander Fay, Bernd Opgenoorth, Jörg Neidig</i>	
Non Intrusive Fault Detection Through Electromagnetism Analysis.....	1059
<i>Sébastien Thomas, Didier Regis, David Faura, Marc Gatti, Guillaume Duc, Jean-Luc Danger</i>	
Multi-scale PCA Based Fault Diagnosis on a Paper Mill Plant.	1067
<i>Francesco Ferracuti, Andrea Giantomassi, Sauro Longhi, Nicola Bergantino</i>	

SS07-2: DISTRIBUTED AUTOMATION SYSTEMS DEVELOPMENT

Using a Meta-model to Build Operational Architectures of Automation Systems for Critical Processes.....	1075
<i>Thibault Lemattre, Bruno Denis, Jean-Marc Faure, Jean-François Pétin, Patrick Salaün</i>	
Typical Automation Functions and Their Distribution in Automation Systems.....	1083
<i>Karin Eckert, Timo Frank, Thomas Hadlich, Alexander Fay, Christian Diedrich, Birgit Vogel-Heuser</i>	
COSME: A Distributed Control Platform for Communicating Machine Tools in Agile Manufacturing Systems.	1091
<i>Carlos Catalán, Félix Serna, Alfonso Blesa, Josep Maria Rams, José Manuel Colom</i>	
Distributed Online Change for IEC 61499.	1099
<i>Andreas Schimmel, Alois Zoitl</i>	

TRACK6-2: COMPUTATIONAL INTELLIGENCE AND MODERN HEURISTICS IN AUTOMATION - EVOLUTIONARY ALGORITHMS IN AUTOMATION

Co-evolutionary Genetic Multilayer Percetron for Variable Selection and Model Design.....	1106
<i>Francisco Souza, Tiago Matias, Rui Araújo</i>	
Evolutive ANFIS Training for Energy Load Profile Forecast for an IEMS in an Automated Factory.....	1113
<i>Juan José Cárdenas, Antoni García, Luis Romeral, Konstantinos Kabouropoulos</i>	
Modeling and Evaluation of Single Machine Flexibility Using Fuzzy Entropy and Genetic Algorithm Based Approach.....	1121
<i>Toufik Bentrçia, Leila Hayet Mouss, Mohamed Djamel Mouss, Mohamed Elhachemi Benbouzid</i>	

SS03: BUILDING AUTOMATION AND SMART HOMES

Holistic Design of Wireless Building Automation Systems.....	1129
<i>Joern Ploennigs, Henrik Dibowski, Uwe Ryssel, Klaus Kabitzsch</i>	
SmartFridge: Demand Side Management for the Device Level.....	1138
<i>Thomas Bigler, Georg Gaderer, Patrick Loschmidt, Thilo Sauter</i>	
Interoperability at the Management Level of Building Automation Systems: A Case Study for BACnet and OPC UA.....	1146
<i>Andreas Fernbach, Wolfgang Granzer, Wolfgang Kastner</i>	

Efficient Building Load Forecasting.	1154
<i>Ivan Fernández, Cruz E. Borges, Yoseba K. Peña</i>	
Impact of User Habits in Smart Home Control.	1162
<i>Felix Iglesias, Wolfgang Kastner, Christian Reinisch</i>	
Implementation and Substantiation of Energy Management Systems for Terminal Buildings.	1170
<i>Tianmeng Shen, Toshiro Togoshi, Hiroaki Nishi</i>	

SS09-1: APPLYING AGENT-BASED TECHNOLOGY IN INDUSTRIAL SYSTEMS

Efficient Agent Interaction in Automation Networks: A Simulation Study.	1174
<i>Sebastian Theiss, Klaus Kabitzsch</i>	
Multiagent-based Approach for the Automation and Quality Assurance of the Small Series Production.	1181
<i>Robert Schmitt, Tilo Pfeifer, Alberto Xavier Pavim, Marcelo Stemmer, Jomi Hübner, Mario Roloff</i>	
An Agent-based and Organisation Oriented Software Architecture for Supply Chains Simulation.	1189
<i>Karam Mustapha, Erwan Tranvouez, Bernard Espinasse, Alain Ferrarini</i>	
Procedure-based Availability SLAs for Traffic Management Systems.	1197
<i>Christoph Stoegerer, Thomas Novak, Wolfgang Kastner, Lukas Krammer</i>	
PROSA and Delegate MAS for Open-Air Engineering Processes.	1205
<i>Paul Valckenaers, Osman Ali, Jan Van Belle</i>	

TRACK5-4: INDUSTRIAL CONTROL - CONTROL SYSTEM APPLICATIONS

Control Circuit of the Heat Exchanger and its Verification on Real Operation Data.	1213
<i>Martin Pies, Stepan Ozana, Pavel Nevriva</i>	
Calibration of Fitting Loss Coefficients for Modelling Purpose of a Plastic Pipeline.	1220
<i>Adrián Navarro, Ofelia Begovich, Gildas Besancon</i>	
Control Considerations in a Drum Level Control Prototype.	1226
<i>Juan J. Gude, Evaristo Kahoraho</i>	
Control Strategies and Wastewater Treatment Plants Performance: Effect of Controllers Parameters Variation.	1234
<i>Henry R. Concepción, Montse Meneses, Ramon Vilanova</i>	
Non-destructive Acoustic Based Moisture Measurement System for Cashew Nuts.	1241
<i>Abhishek Agrawal, Kiran Nagaraj, Karthik Ragunathan</i>	

SS02-1: ENGINEERING PROCESSES EXPLOITING MECHATRONICAL THINKING

Mechatronic Models As a Driver for Digital Plant Engineering.	1246
<i>Birthe Böhm, Norbert Gewalt, Adrian Köhlein, Jürgen Elger</i>	
Efficient Automation Systems Engineering Process Support Based on Semantic Integration of Engineering Knowledge.	1254
<i>Thomas Moser, Richard Mordinyi, Dietmar Winkler, Martin Melik-Merkumians, Stefan Biffl</i>	
Methodology for the Evaluation of Tools with Respect to Its Applicability Within Mechatronical Engineering.	1262
<i>Lorenz Hundt, Arndt Lüder, Adrian Köhlein, Norbert Gewalt</i>	
Improving Mechatronical Engineering: An Artifact-Assessment-Based Approach.	1270
<i>Fritz Stallinger, Robert Neumann, Reinhold Plösch, Peter Hehenberger, Birthe Böhm, Adrian Köhlein, Norbert Gewalt</i>	
Identification of Mechatronic Units Based on an Example of a Flexible Customized Multi Lathe Machine Tool.	1278
<i>Michael Weyrich, Frank Steden, Jochen Wolf, Matthias Scharf</i>	

TRACK6-3: COMPUTATIONAL INTELLIGENCE AND MODERN HEURISTICS IN AUTOMATION - INTELLIGENT CONTROL

Handling Control Engineer Preferences: Getting the Most of PI Controllers.	1282
<i>Gilberto Reynoso-Meza, Javier Sanchis, Xavier Blasco, Juan M. Herrero</i>	

Fault Tolerant Tracking Controller Design for T-S Fuzzy Disturbed Systems with Uncertainties Subject to Actuator Faults.	1290
<i>Sabrina Aouaouda, Khadir Mohamed Tarek, Dalil Ichalal, Mohammed Chadli, Tahar Bouarar</i>	
A Qualitative Balance of Shape Descriptors on Dynamometer Cards.	1298
<i>Fábio Soares de Lima, Diego Rodrigo Cabral Silva, Luiz Affonso H. Guedes de Oliveira</i>	
Variable and Time-Lag Selection Using Empirical Data.	1306
<i>Francisco Souza, Rui Araújo</i>	

TRACK7-2: INTELLIGENT ROBOTS & SYSTEMS - PERCEPTION AND PLANNING

Interactive Locomotion Animation Using Path Planning.	1314
<i>David Flavigné, Michel Taïx</i>	
Choosing the Number of Labels in Image Segmentation.	1322
<i>Yonghuai Liu, John Draper, Alan Gay, Catherine Howarth, Ralph Martin</i>	
A Probabilistic Abstraction Approach for Planning and Controlling Mobile Robots.	1328
<i>Marius Kloetzer, Cristian Mahulea, Octavian Pastravanu</i>	

WIP4: AUTOMATED MANUFACTURING SYSTEMS

Modelling and Implementation of Automata-Based Hierarchical Discrete-Event Controllers Using the B-Method.	1336
<i>Noe Campos, Arturo Sanchez</i>	
Automation of Patterned and Solar Glass Cutting and Stacking Line.	1340
<i>Taner Incirci, Dilek Tükel</i>	
Toward a Methodology for Disruption Management - Reactive Planning and Scheduling Based on a Repair Approach.	1344
<i>Alain Ferrarini, Aline Cauvin, Sebastien Fournier</i>	
Application of Using SCEP Model for Distributed Scheduling with Shared Resources in Hospital System.	1348
<i>Jiucheng Xu, Bernard Archimède, Agnes Letouzey</i>	
Max-plus-linear Model-based Predictive Control for Constrained HVLV Manufacturing Systems.	1352
<i>Imed Nasri, Georges Habch, Reda Boukezzoula</i>	
Automatic Generation: A Way of Ensuring PLC and HMI Standards.	1356
<i>Petter Falkman, Erik Helander, Mikael Andersson</i>	
mINA-DL: A Novel Description Language Enabling Dynamic Reconfiguration in Industrial Automation.	1360
<i>Michael Wienke, Sebastian Faltinski, Oliver Niggemann, Jürgen Jasperneite</i>	
A Reference System for the Benchmarking of Manufacturing Control Systems.	1364
<i>Sebastian Schreiber, Alexander Fay</i>	
Control Architecture for a Supervised Industrial Robotic Workcell Integration.	1368
<i>Paulo Ferreira, Victoria Reyes, João Mestre</i>	
Engineering Process for an Online Testing Process of Control Software in Production Systems.	1372
<i>Benjamin Kormann, Birgit Vogel-Heuser, Reinhard Hametner, Alois Zoitl</i>	
Control of Productive Systems with Functional Flexibility Level.	1376
<i>Oswaldo Luis Asato, Fabricio Junqueira, Diolino Jose Dos Santos Filho, Paulo Eigi Miyagi, Lindolpho Araujo Junior</i>	

WIP2-2: INDUSTRIAL COMMUNICATION SYSTEMS

A New Beacon Scheduling Mechanism for Mesh Wireless Personal Area Networks Based on IEEE 802.15.4.	1380
<i>Juan Lu, Adrien Van Den Bossche, Eric Campo</i>	
A Flexible Approach for Real-time Wireless Communications in Adaptable Industrial Automation Systems.	1384
<i>Henning Trsek, Lukasz Wisniewski, Emanuele Toscano, Lucia Lo Bello</i>	
Implementation of an Advanced IEEE 802.11 WLAN AP for Real-time Wireless Communications.	1388
<i>Henning Trsek, Stefan Schwalowsky, Bjoern Czybik, Juergen Jasperneite</i>	
A Unified Approach for the Assessment of Industrial Wireless Solutions.	1392
<i>Paul Neufeld, Lutz Rauchhaupt, Uwe Meier, Marko Krätzig</i>	

Preliminary Results on the Assessment of WirelessHART Networks in Transient Fault Scenarios.	1396
<i>Ivanovitch Silva, Luiz Affonso Guedes, Paulo Portugal, Francisco Vasques</i>	
Wireless Parking Lot Monitoring and Guidance.	1400
<i>Daniel Silva, Paulo Bartolomeu, José Fonseca</i>	
A Communication Protocol for Open Environment Housings.	1404
<i>Vasco Baptista, Paulo Bartolomeu, Ricardo Almeida, Pedro Mar, José Fonseca</i>	
Towards a OMG DDS Communication Backbone for Factory Automation Applications.	1408
<i>Isidro Calvo, Federico Perez, Oier García De Albeniz, Ismael Etxeberria Agiriano</i>	

SS02-2: ENGINEERING PROCESSES EXPLOITING MECHATRONICAL THINKING

Aggregation of Engineering Processes Regarding the Mechatronic Approach.	1412
<i>Arndt Lüder, Matthias Foehr, Lorenz Hundt, Martin Hoffmann, Yvonne Langer, Stefanie Frank</i>	
Mechatronic Engineering of Novel Manufacturing Processes Implemented by Modular and Sensor-Guided Machinery.	1420
<i>Michael Weyrich, Philipp Klein, Martin Laurowski, Yongheng Wang</i>	
Intelligent Environment for Mechatronic, Cross-discipline Plant Engineering.	1427
<i>Miriam Schleipen, Manfred Schenk</i>	

SS04: MIDDLEWARE SOLUTIONS FOR AUTOMATION SYSTEMS

Requirements on Distribution Management for Service-Oriented Automation Systems.	1435
<i>Henning Mersch, Ulrich Epple</i>	
Function Allocation for Multi-agent Systems and Middleware in Industrial Automation Systems.	1443
<i>Leon Urbas, Stephan Pech, Annett Krause, Peter Göhner</i>	
Information Modeling for Middleware in Automation.	1447
<i>Wolfgang Mahnke, Andreas Gössling, Markus Graube, Leon Urbas</i>	
A Middleware for Software Evolution of Automation Software.	1454
<i>Ingmar Kühl, Alexander Fay</i>	

SS09-2: APPLYING AGENT-BASED TECHNOLOGY IN INDUSTRIAL SYSTEMS

Visualization of Ontologies in Multi-Agent Industrial Systems.	1463
<i>Marek Obitko, Pavel Vrba, Petr Kadera, Václav Jirkovsky</i>	
A Market-Based Multi-Agent-System for Decentralized Power and Grid Control.	1471
<i>Tobias Linnenberg, Sebastian Schreiber, Ireneus Wior, Alexander Fay</i>	
Simulation-based Environment for Modeling Distributed Agents for Smart Grid Energy Management.	1479
<i>Francisco Maturana, Rohan Ambre, Raymond Staron, Dan Carnahan, Kenneth Loparo</i>	

TRACK5-5: INDUSTRIAL CONTROL - ADVANCED CONTROL METHODS II

Stable Indirect Adaptive Predictive Fuzzy Control for Industrial Processes.	1486
<i>Jérôme Mendes, Rui Araújo</i>	
Adaptive Predictive Control With Recurrent Fuzzy Neural Network for Industrial Processes.	1494
<i>Jérôme Mendes, Nuno Sousa, Rui Araújo</i>	
Decentralized Kalman Filter Comparison for Distributed-Parameter Systems: A Case Study for a 1D Heat Conduction Process.	1502
<i>Zulkifli Hidayat, Robert Babuska, Bart De Schutter, Alfredo Nunez</i>	
Modeling and Predictive Control for Compensating Network-induced Time-varying Delays.	1510
<i>Constantin Florin Caruntu, Corneliu Lazar</i>	

SS07-3: DISTRIBUTED AUTOMATION SYSTEMS DEVELOPMENT

Automatic Composition of IEC 61499 Distributed Control Applications.	1518
<i>Guadalupe Morán, Federico Pérez, Dario Orive, Elisabet Estévez, Marga Marcos</i>	

"Predictive Maintenance Surveyor" Design Pattern for Machine Tools Control Software Applications.....	1525
<i>Félix Serna, Carlos Catalan, Alfonso Blesa, Josep Maria Rams, José Manuel Colom</i>	
Improved Communication Model for an IEC 61499 Runtime Environment.....	1532
<i>Michael Hofmann, Martijn Rooker, Alois Zoitl</i>	

6TH WORKSHOP ON SERVICE ORIENTED ARCHITECTURES IN CONVERGING NETWORKED ENVIRONMENTS (SOCNE'2011)

SESSION SOCNE-1

OSAMI COMMONS - An Open Platform for Dynamic Services for Ambient Intelligence.....	1539
<i>Naci Dai, Jesus Bermejo, Felix Cuadrado Latasa, Alejandra Ruiz López, Isaac Agudo, Elmar Zeeb, Jan Krueger, Oliver Dohndorf, Wolfgang Thronicke, Christoph Fiehe, Anna Litvina</i>	
Autonomic Enterprise Service Bus.....	1549
<i>Philippe Lalanda, Issac Garcia, Denis Morand</i>	
A New Approach for Automatic Generation of Tests for Next Generation Network Communication Services.....	1557
<i>Marten Fischer, Ralf Tönjes, Rolf Lasch</i>	

SESSION SOCNE-2

Integration of Medical Equipment into SOA - Enabling Technology for Efficient Workflow Management.....	1563
<i>Lars Lindemann, Mario Thron, Thomas Bangemann, Oliver Grosser</i>	
User-Generated Mobile Services for Health and Fitness.....	1571
<i>Alexandra Chapko, Marc Gräßle, Andreas Emrich, Dirk Werth, Carsten Rust, Jürgen Tacke, Stephan Flake, Nico Laum, Christian Lerche, Alexander Weber</i>	
Towards Self-organization of Networked Medical Devices.....	1579
<i>Joachim Hänsel, Matthias Hovestadt, Michael John, Odej Kao, Andreas Kliem</i>	

SESSION SOCNE-3

Service Offloading in Adaptive Real-Time Systems.....	1587
<i>Luis Lino Ferreira, Guilherme Silva, Luis Miguel Pinho</i>	
Requirements for Smart Home Applications and Realization with WS4D-PipesBox.....	1593
<i>Elmar Zeeb, Guido Moritz, Christian Beckel, Heinz Serfas, Frank Golatowski, Dirk Timmermann</i>	
Adaptive and Reliable Binding in Ambient Service Systems.....	1601
<i>Jan Krüger, Oliver Dohndorf, Heiko Krumm, Christoph Fiehe, Anna Litvina, Ingo Lück, Franz-Josef Stewing</i>	
Author Index	