RTSS 2006 Final Program

December 5th: Workshop Day (Room A)
Model and Analysis Methods for Automotive Systems
CiberMouse Competition

December 6th
8:45-9:00 Introduction (Room A)
9:00-10:00 Keynote Speaker: Dr. Feng Zhao, Microsoft Research, Sensornet 2.0: The New Frontier (Room A)
10:00-10:30 Break
10:30-12:30 (Room A) Embedded Systems
RUN-TIME SERVICES FOR HYBRID CPU/FPGA SYSTEMS ON CHIP, Jason Agron, Wesley Peck, Erik Anderson, David Andrews, Ed Komp, Ron Sass, Fabrice Baijot and Jim Stevens
MCGREP - A PREDICTABLE ARCHITECTURE FOR EMBEDDED REAL-TIME SYSTEMS, Jack Whitham and Neil Audsley
INTERFACE-BASED RATE ANALYSIS OF EMBEDDED SYSTEMS, Samarjit Chakraborty, Yanhong Liu, Nikolay Stoimenov, Lothar Thiele and Ernesto Wandel
AN EMPIRICAL EVALUATION OF MEMORY MANAGEMENT ALTERNATIVES FOR REAL-TIME JAVA, Filip Pizlo and Jan Vitek
10:30-12:30 (Room B) Languages
PROGRAMMING SERVERS IN ADA 2005, Alan Burns and Andy Wellings
AUTOMATIC DERIVATION OF LOOP BOUNDS AND INFEASIBLE PATHS FOR WCET ANALYSIS USING ABSTRACT EXECUTION, Jan Gustafsson, Andreas Ermedahl, Christer Sandberg and Björn Lisper
FASTER VERIFICATION OF RTL-SPECIFIED SYSTEMS VIA DECOMPOSITION AND CONSTRAINT EXTENSION, Stefan Andrei and Albert Mo Kim Cheng
HARD REAL-TIME HYBRID GARBAGE COLLECTION WITH LOW MEMORY REQUIREMENT, Yang Chang and Andy Wellings
12:30-2:00 Lunch
2:00-3:30 (Room A) Multicore and Multiprocessor Platforms
PARALLEL REAL-TIME TASK SCHEDULING ON MULTICORE PLATFORMS, James Anderson and John Calandrino
AN OPTIMAL REAL-TIME SCHEDULING ALGORITHM FOR MULTIPROCESSORS, Hyeonjong Cho, Binoy Ravinandran and E. Douglas Jensen
LITMUS RT: A TESTBED FOR EMPIRICALLY COMPARING REAL-TIME MULTIPROCESSOR SCHEDULERS, John Calandrino, Hen nadzie Leontyev, Aaron Block, UmaMahewsari Devi and James Anderson
2:00-3:30 (Room B) Distributed Real-Time Systems
A PATTERN FOR ADAPTIVE BEHAVIOR IN SAFETY-CRITICAL, REAL-TIME MIDDLEWARE, Tanya Crenshaw, C. L. Robinson, Hui Ding, P. R. Kumar and Lui Sha
DISTRIBUTED UTILIZATION CONTROL FOR REAL-TIME CLUSTERS WITH LOAD BALANCING, Yong Fu, Honggan Wang, Chenyang Lu and Ramu Chandra

RTSAT - AN OPTIMAL AND EFFICIENT APPROACH TO THE TASK ALLOCATION PROBLEM IN DISTRIBUTED ARCHITECTURES, Alexander Metzner and Christian Herde
3:30-4:00 Break
4:00-5:30 (Room A) Feasibility and Schedulability Analysis (Jim Anderson)
SUSTAINABLE SCHEDULABILITY ANALYSIS, Sanjoy Baruah and Alan Burns
OPTIMAL SCHEDULING OF A CONSTANT BANDWIDTH SERVER, Giorgio Buttazzo and Enrico Bini
A NECESSARY AND SOMETIMES SUFFICIENT CONDITION FOR THE FEASIBILITY OF SETS OF SPORADIC HARD-Dredirect deadline TASKS, Theodore P. Baker and Michele Cirinei
4:00-5:30 (Room B) Operating Systems
PROCESS-WARE-AWARE INTERRUPT SCHEDULING AND ACCOUNTING, Yuting Zhang and Richard West
DESIGN OF LOCATION SERVICE FOR A HYBRID NETWORK OF MOBILE ACTORS AND STATIC SENSORS, Zhigang Chen, Min-gyu Cho and Kang Shin
TIGHTENING THE BOUNDS ON FEASIBLE PREEMPTION POINTS, Harini Ramaprasad and Frank Mueller
December 7th (Room A)
8:00-10:00 Scheduling I
PROCESSOR SCHEDULER FOR MULTI-SERVICE ROUTERS, Ravi Kokku, Upendra Shevade, Nishit Shah, Ajay Mahimkar, Taewon Cho and Harrick Vin
GENERALIZED ELASTIC SCHEDULING, Thiadapt Chantem, Xiaobo Sharon Hu and M.D. Lemmon
USER-LEVEL FINE-GRANULAR ADAPATIVE REAL-TIME SCHEDULING VIA TEMPORAL REFLECTION, Sergio Ruocco
RESOURCE SHARING IN HIERARCHICAL FIXED PRIORITY PRE-EMPTIVE SYSTEMS, Robert Davis and Alan Burns
10:00-10:30 Break
10:30-12:00 Applications
PRINCIPLES FOR THE PREDICTION OF VIDEO DECODING TIMES APPLIED TO MPEG-1/2 AND MPEG-4 PART 2 VIDEO, Michael Roitzsch and Martin Pohlack
COMBINED SCHEDULING OF SENDING AND COMMUNICATION FOR REAL-TIME INDOOR TRACKING IN ASSISTED LIVING, Min-Young Nam, Mhd Zaher Al-Sabbagh and Chang-Gun Lee
VOICE OVER SENSOR NETWORKS, Rahul Mangharam, Anthony Rowe, Ryohhe Suzuki and Ragunathan Rajkumar
12:00-1:30 Lunch
1:30-3:00 WIP I
3:00-3:30 Break
3:30-5:00 Energy and Thermal Management
ENERGY-EFFICIENT REAL-TIME TASK SCHEDULING FOR A DVS SYSTEM WITH A NON-DVS PROCESSING ELEMENT, Chia-Mei Hung, Jian-Jia Chen and Tei-Wei Kuo
SYSTEM-LEVEL ENERGY MANAGEMENT FOR PERIODIC REAL-TIME TASKS, Hakan Aydin, Vinay Devadas and Dakai Zhu
DELAY ANALYSIS IN TEMPERATURE-CONSTRAINED HARD REAL-TIME SYSTEMS WITH GENERAL TASK ARRIVALS, Shengquan Wang and Riccardo Bettati
5:00-6:00 Databases
MUTUAL CONSISTENCY IN REAL-TIME DATABASES, Abhay Kumar Jha, Ming Xiong and Krithi Ramamritham
PREDICTION-BASED QOS MANAGEMENT FOR REAL-TIME DATA STREAMS, Yuan Wei, Vibha Prasad, Sang Son and John Stankovic
6:00-7:00 Technical Committee Meeting
December 8th (Room A)
8:00-10:00 Scheduling II
COMPLIANCE ENFORCEMENT OF TEMPORAL AND DOSAGE CONSTRAINTS, Pei-Hsuan Tsai, H. C. Hsiu, C. S. Shih and J. W. S. Liu
DIVERSE SOFT REAL-TIME PROCESSING IN AN INTEGRATED SYSTEM, Caixue Lin, Tim Kaldewey, Anna Povzner and Scott Brandt
RESOURCE SHARING IN EDF-SCHEDULED SYSTEMS: A CLOSER LOOK, Sanjoy Baruah
A COGNAC-CLASS ALGORITHM FOR CONDITIONALLY GUARANTEED BUDGETS, Reinder J. Bril, Wim F.J. Verhaegh and Clemens C. Wust
10:00-10:30 Break
10:30-12:00 WIP II
12:00-1:30 Lunch
1:30-3:00 Sensor Networks
DISTRIBUTED REAL-TIME DETECTION AND TRACKING OF HOMOGENEOUS REGIONS IN SENSOR NETWORKS, Sharmila Subramaniam, Vana Kalogeras and Themis Palpanas
MODELING AND WORST-CASE DIMENSIONING OF CLUSTER-TREE WIRELESS SENSOR NETWORKS, Anis Koubaa, Mário Alves and Eduardo Tovar
REAL-TIME TRAFFIC MANAGEMENT IN SENSOR NETWORKS, Kyriakos Keros and Vana Kalogeras
3:00-3:30 Break
3:30-5:30 Timing Constraints Monitoring and Prediction
A GENERIC FRAMEWORK FOR MONITORING TIMING CONSTRAINTS OVER UNCERTAIN EVENTS, Honguk Woo, Aloysius K. Mok and Chan-Gun Lee
DETERMINING MAXIMUM STACK USAGE IN PREEMPTIVE SHARED STACK SYSTEMS, Maximilian Boihin, Jan Carlson and Mikael Nolin
PREDICTION OF TIMING CONSTRAINT VIOLATION FOR REAL-TIME EMBEDDED SYSTEMS WITH KNOWN TRANSIENT HARDWARE FAULT DISTRIBUTION MODEL, Yue Yu, Shangping Ren and Ophir Frieder
Room A: Salao Ataulfo (26th floor)
Room B: Salao Urquiza (25th floor)
Work in Progress Papers

**WIP SESSION 1, December 7th:**
1:30 – 3:00

- MIDDLEWARE AND TOOL SUITE FOR HIGH INTEGRITY SYSTEMS, Jérémy Hugues, Bechir Zaïla and Laurent Pautet
- ASPECT-ORIENTED REAL-TIME ARCHITECTURE—AORTA, Fabian Scheler, Daniel Lohmann, Olaf Spinczyk and Wolfgang Schroeder-Preikschat
- REAL-TIME SUBSYSTEM INTEGRATION IN THE PRESENCE OF SHARED RESOURCES, Moris Behnam, Insik Shin, Thomas Nolte and Mikael Nolin
- REAL-TIME DOMAIN ENGINEERING FOR SOC-DESIGN, Rafael Cancian, Marcelo Stemmer and Antonio Frohlich
- USING REAL-TIME COMPONENTS TO CONSTRUCT SUPERVISION AND CONTROL APPLICATIONS, Sandro Santos Andrade, Raimundo José de Araújo Macêdo, Alírio Santos de Sá and Neima Prado dos Santos
- TOWARDS INTENT SPECIFICATIONS FOR SAFE REUSE IN MODEL-DRIVEN REAL-TIME SOFTWARE - A CASE-STUDY ON SATELLITE FLIGHT SOFTWARE, Walter A. dos Santos, Edgar T. Yano and Adilson M. da Cunha
- TRANSLATING REAL-TIME UML TIMING CONSTRAINTS INTO REAL-TIME LOGIC FORMULAS, Gowri Aruchamy and Albert Mo Kim Cheng
- OPTIMIZING TIMED AUTOMATA MODEL CHECKING VIA CLOCK REORDERING, Victor Braberman, Alfredo Olivero and Fernando Schapachnik
- SOFTSCOPE: EMBEDDED REAL-TIME SYSTEMS VERIFICATION TOOL SET, João Cadamuro Junior and Douglas P. B. Renaux
- A PROPOSAL FOR A CENTRALIZED RETRANSMISSION APPROACH FOR FIRM REAL-TIME TRAFFIC IN IEEE 802.11E, Douglas Dými Demarch and Leandro Buss Becker
- RECONCILING DISTRIBUTED COMPUTING MODELS AND REAL-TIME SYSTEMS, Heinrich Moser and Ulrich Schmid
- SLICE-BALANCING H.264 VIDEO ENCODING FOR IMPROVED SCALABILITY OF MULTICORE DECODING, Michael Roitzsch
- RESOURCE DEPLOYMENT STRATEGIES FOR DELAY-TOLERANT MULTIMEDIA APPLICATIONS, Saraswathi Krishivasan and Sridhar Iyer
- WCET ANALYSIS OF TIME-PREDICTABLE VLIW PROCESSORS, Jun Yan and Wei Zhang
- A NEW REPRESENTATION FOR THE SCHEDULING PROBLEM AND ITS APPLICATIONS, Matthieu Lemerre, Vincent David, Christophe Aussagui and Guy Vidal-Naquet
- ENERGY-AWARE REAL-TIME SCHEDULING OF MULTICORE GENERAL PURPOSE/SPECIAL PURPOSE PROCESSORS SYSTEMS-ON-A-CHIP, Rodrigo M. Santos, David Donari, Leo Ordinez, Jorge Santos and Javier Orozco
- STUDY OF REAL-TIME SCHEDULING UNDER PRIORITIZED SIMULTANEOUS MULTITHREADING, Shinpei Kato and Nobuyuki Yamasaki
- TIME-INTERVAL SCHEDULING AND ITS APPLICATIONS TO REAL-TIME SYSTEMS, Fábio Rodrigues de la Rocha and Rômulo Silva de Oliveira
- TARDINESS BOUNDS FOR EDF SCHEDULING ON DUAL-SPEED MULTICORE PLATFORMS, Hennady Leontyev and James H. Anderson
- ON UTILITY ACCRUAL OVERLOAD SCHEDULING FOR MULTIPROCESSORS, Hyeonjoong Cho, Binoy Ravindran and E. Douglas Jensen
- 3D GC: TOWARDS A GARBAGE COLLECTOR THAT CONSIDERS TIME, SPACE, AND ENERGY, Quinn S. Lewis and Albert Mo Kim Cheng
- AN INFRASTRUCTURE FOR GENERATION OF APPLICATION SPECIFIC OPERATING SYSTEMS, Paulo Cardoso, Carlos Silva and Adriano Tavares
- TOWARD THERMAL-AWARE LOAD-DISTRIBUTION FOR REAL-TIME SERVER FARMS, Alexandre P. Ferreira, Jae Oh and Daniel Mossé

**WIP SESSION 2, December 8th:**
10:30 – 12:00

- GUIDELINES FOR CREATING REAL-TIME MANETS, M. M. Sobral and L. B. Becker
- FOCUSING SIMULATION FOR END-TO-END DELAYS ANALYSIS ON A SWITCHED ETHERNET, Hussein Charara, Jean-Luc Scharbarg and Christian Fraboul