Paul Pop - DTU Orbit (09/08/2017)

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Copenhagen Center for Health Technology
Department of Applied Mathematics and Computer Science - Professor
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Publications:

Fast architecture-level synthesis of fault-tolerant flow-based microfluidic biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Performance Improvements and Congestion Reduction for Routing-based Synthesis for Digital Microfluidic Biochips
Publication: Research - peer-review › Journal article – Annual report year: 2016

Safe Cooperating Cyber-Physical Systems using Wireless Communication
Publication: Research - peer-review › Journal article – Annual report year: 2017

Synthesis of on-chip control circuits for mVLSI biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Test-Driven, Model-Based Systems Engineering.
Publication: Research › Ph.D. thesis – Annual report year: 2017

Timing analysis of rate-constrained traffic in TTEthernet using network calculus
Publication: Research - peer-review › Journal article – Annual report year: 2017

Waste-aware fluid volume assignment for flow-based microfluidic biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

A Pin-Count Reduction Algorithm for Flow-Based Microfluidic Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Architecture Synthesis for Cost-Constrained Fault-Tolerant Flow-based Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016
Automatic Functionality Assignment to AUTOSAR Multicore Distributed Architectures
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Design optimization for security-and safety-critical distributed real-time applications
Publication: Research - peer-review › Journal article – Annual report year: 2016

Design Optimization of Cyber-Physical Distributed Systems using IEEE Time-sensitive Networks (TSN)
Publication: Research - peer-review › Journal article – Annual report year: 2016

Microfluidic Very Large Scale Integration (VLSI): Modeling, Simulation, Testing, Compilation and Physical Synthesis
Publication: Research - peer-review › Book – Annual report year: 2016

Routing Optimization of AVB Streams in TSN Networks
Publication: Research - peer-review › Conference article – Annual report year: 2016

Synthesis of Application-Specific Fault-Tolerant Digital Microfluidic Biochip Architectures
Publication: Research - peer-review › Journal article – Annual report year: 2016

The SafeCOP ECSEL Project: Safe Cooperating Cyber-Physical Systems Using Wireless Communication
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Traffic class assignment for mixed-criticality frames in TTEthernet
Publication: Research - peer-review › Conference article – Annual report year: 2016

A Probabilistic Approach for the System-Level Design of Multi-ASIP Platforms
Publication: Research › Ph.D. thesis – Annual report year: 2015

Continuous-flow biochips: Current platforms and emerging research challenges: Special Session
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Continuous-Flow Biochips: Technology, Physical Design Methods and Testing
Publication: Research - peer-review › Journal article – Annual report year: 2015

Design of Mixed-Criticality Applications on Distributed Real-Time Systems
Publication: Research › Ph.D. thesis – Annual report year: 2015
Design Optimization of Mixed-Criticality Real-Time Embedded Systems
Publication: Research - peer-review » Journal article – Annual report year: 2015

Design optimization of TTEthernet-based distributed real-time systems
Publication: Research - peer-review » Journal article – Annual report year: 2014

Fault-Tolerant Digital Microfluidic Biochips: Compilation and Synthesis
Publication: Research » Book – Annual report year: 2015

Fault-Tolerant Topology Selection for TTEthernet Networks
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015

Flow-Based Biochips: Fault-Tolerant Design and Error Recovery
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015

Introduction
Publication: Research » Book chapter – Annual report year: 2015

Microfluidic very large-scale integration for biochips: Technology, testing and fault-tolerant design
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015

Pin count-aware biochemical application compilation for mVLSI biochips
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015

Redundancy Optimization for Error Recovery in Digital Microfluidic Biochips
Publication: Research - peer-review » Journal article – Annual report year: 2015

Synthesis of Biochemical Applications on Digital Microfluidic Biochips with Operation Execution Time Variability
Alistar, M. & Pop, P. 2015 In : Integration. 51, September, p. 158-168
Publication: Research - peer-review » Journal article – Annual report year: 2015

System-level synthesis of multi-ASIP platforms using an uncertainty model
Publication: Research - peer-review » Journal article – Annual report year: 2015

Timing Analysis of Rate Constrained Traffic for the TTEthernet Communication Protocol
Publication: Research - peer-review » Article in proceedings – Annual report year: 2015
Towards droplet size-aware biochemical application compilation for AM-EWOD biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Compilation and Synthesis for Fault-Tolerant Digital Microfluidic Biochips
Publication: Research › Ph.D. thesis – Annual report year: 2014

Online Synthesis for Operation Execution Time Variability on Digital Microfluidic Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Optimization of Partitioned Architectures to Support Soft Real-Time Applications
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Optimization of TTEthernet Networks to Support Best-Effort Traffic
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Programming language and tools for Multipurpose Lab-on-a-Chip Platforms
Publication: Research - peer-review › Poster – Annual report year: 2014

Tradeoff analysis for Dependable Real-Time Embedded Systems during the Early Design Phases
Publication: Research › Ph.D. thesis – Annual report year: 2014

A network-flow based valve-switching aware binding algorithm for flow-based microfluidic biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Application-specific fault-tolerant architecture synthesis for digital microfluidic biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

ASAM: Automatic architecture synthesis and application mapping
Publication: Research - peer-review › Journal article – Annual report year: 2014

Biochemical Application Compilation and Architecture Synthesis for Fault-Tolerant Digital Microfluidic Biochips
Alistar, M., Pop, P. & Madsen, J. 2013
Publication: Research - peer-review › Poster – Annual report year: 2014
Droplet-Aware Module-Based Synthesis for Fault-Tolerant Digital Microfluidic Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Online Synthesis for Error Recovery in Digital Microfluidic Biochips with Operation Variability
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Robust and flexible mapping for real-time distributed applications during the early design phases
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2012

Routing-based synthesis of digital microfluidic biochips
Publication: Research - peer-review › Journal article – Annual report year: 2012

SAFCM: A Security-Aware Feedback Control Mechanism for Distributed Real-Time Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Scheduling and Optimization of Fault-Tolerant Embedded Systems with Transparency/Performance Trade-Offs
Publication: Research - peer-review › Journal article – Annual report year: 2012

Synthesis of Biochemical Applications on Flow-Based Microfluidic Biochips using Constraint Programming
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Synthesis of Communication Schedules for TTEthernet-Based Mixed-Criticality Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

System-Level Modeling and Synthesis Techniques for Flow-Based Microfluidic Very Large Scale Integration Biochips
Publication: Research › Ph.D. thesis – Annual report year: 2013

Task Mapping and Partition Allocation for Mixed-Criticality Real-Time Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Timing Analysis of Mixed-Criticality Hard Real-Time Applications Implemented on Distributed Partitioned Architectures
Publication: Research - peer-review › Paper – Annual report year: 2013
A Bio-Inspired Self-Healing Reconfigurable Hardware Architecture: Concept, design, prototype, and evaluation
Publication: Research › Ph.D. thesis – Annual report year: 2011

Application-Aware Optimization of Redundant Resources for the Reconfigurable Self-Healing eDNA Hardware Architecture
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Cell Culture Microfluidic Biochips: Experimental Throughput Maximization
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Design Optimization of Mixed-Criticality Real-Time Applications on Cost-Constrained Partitioned Architectures
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Development Tools
Publication: Research - peer-review › Book chapter – Annual report year: 2011

Digital Microfluidic Biochips: Recent Research and Emerging Challenges
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Energy/Reliability Trade-offs in Fault-Tolerant Event-Triggered Distributed Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Optimization of Time-Partitions for Mixed-Criticality Real-Time Distributed Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Recent Research and Emerging Challenges in the System-Level Design of Digital Microfluidic Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Synthesis of Digital Microfluidic Biochips with Reconfigurable Operation Execution
Publication: Research › Ph.D. thesis – Annual report year: 2011

System-Level Modeling and Synthesis of Flow-Based Microfluidic Biochips
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011
Design Optimization of Multi-Cluster Embedded Systems for Real-Time Applications
Publication: Research - peer-review › Book chapter – Annual report year: 2006

Mapping of Fault-Tolerant Applications with Transparency on Distributed Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Optimization of Fault-Tolerant Applications on Distributed Embedded Systems
Publication: Research › Article in proceedings – Annual report year: 2006

Schedulability-Driven Communication Synthesis for Time Triggered Embedded Systems
Publication: Research - peer-review › Book chapter – Annual report year: 2006

Synthesis of Fault-Tolerant Embedded Systems with Checkpointing and Replication
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Synthesis of Fault-Tolerant Schedules with Transparency/Performance Trade-offs for Distributed Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Timing Analysis of the FlexRay Communication Protocol
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Analysis and optimisation of heterogeneous real-time embedded systems
Publication: Research - peer-review › Journal article – Annual report year: 2005

Analysis and Optimization of Heterogeneous Real-Time Embedded Systems
Publication: Research - peer-review › Journal article – Annual report year: 2005

Automotive Industry
Publication: Research - peer-review › Book chapter – Annual report year: 2005

Design Optimization of Time- and Cost-Constrained Fault-Tolerant Distributed Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Distributed Embedded Real-Time Systems: Analysis and Exploration
Publication: Research - peer-review › Book chapter – Annual report year: 2005
Optimization of Hierarchically Scheduled Heterogeneous Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Analysis and Synthesis of Communication-Intensive Heterogeneous Real-Time Systems
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2004

Analysis and Synthesis of Distributed Real-Time Embedded Systems
Publication: Research - peer-review › Book – Annual report year: 2004

Design Optimization of Multi-Cluster Embedded Systems for Real-Time Applications
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Schedulability-Driven Communication Synthesis for Time Triggered Embedded Systems
Publication: Research - peer-review › Journal article – Annual report year: 2004

Schedulability-Driven Communication Synthesis for Time-Triggered Embedded Systems
Publication: Research - peer-review › Journal article – Annual report year: 2004

Schedulability-Driven Partitioning and Mapping for Multi-Cluster Real-Time Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2004

Schedulability-Driven Partitioning and Mapping for Multi-Cluster Real-Time Systems
Pop, P., Eles, P., Peng, Z. 2004
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2004

Scheduling and Mapping in an Incremental Design Methodology for Distributed Real-Time Embedded Systems
Publication: Research - peer-review › Journal article – Annual report year: 2004

Analysis and Synthesis of Communication-Intensive Heterogeneous Real-Time Systems
Pop, P. 2003 (Linköping Studies in Science and Technology; No. 833).
Publication: Research › Ph.D. thesis – Annual report year: 2003

An Improved Scheduling Technique for Time-Triggered Embedded Systems
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 1999

Incremental Mapping and Scheduling for Distributed Heterogeneous Real-Time Systems
Publication: Research - peer-review › Conference article – Annual report year: 2003
Schedulability Analysis and Optimization for the Synthesis of Multi-Cluster Distributed Embedded Systems
Publication: Research - peer-review » Conference article – Annual report year: 2003

Schedulability Analysis and Optimization for the Synthesis of Multi-Cluster Distributed Embedded Systems
Publication: Research - peer-review » Article in proceedings – Annual report year: 2003

Schedulability-Driven Frame Packing for Multi-Cluster Distributed Embedded Systems
Publication: Research - peer-review » Conference article – Annual report year: 2003

Comparing Web Applications with Desktop Applications: An Empirical Study
Pop, P. 2002
Publication: Research - peer-review » Report – Annual report year: 2002

Flexibility Driven Scheduling and Mapping for Distributed Real-Time Systems
Publication: Research - peer-review » Article in proceedings – Annual report year: 2002

Scheduling, Mapping and Communication Synthesis for Distributed Real-Time Systems
Publication: Research - peer-review » Article in proceedings – Annual report year: 2002

An Approach to Incremental Design of Distributed Embedded Systems
Publication: Research - peer-review » Conference article – Annual report year: 2001

Minimizing System Modification in an Incremental Design Approach
Publication: Research - peer-review » Article in proceedings – Annual report year: 2001

Bus Access Optimization for Distributed Embedded Systems Based on Schedulability Analysis
Publication: Research - peer-review » Article in proceedings – Annual report year: 2000

Performance Estimation for Embedded Systems with Data and Control Dependencies
Publication: Research - peer-review » Article in proceedings – Annual report year: 2000

Schedulability analysis for systems with data and control dependencies
Publication: Research - peer-review » Conference article – Annual report year: 2000

Scheduling and Communication Synthesis for Distributed Real-Time Systems
Pop, P. 2000
Scheduling with Bus Access Optimization for Distributed Embedded Systems
Publication: Research - peer-review › Journal article – Annual report year: 2000

An Improved Scheduling Technique for Time-Triggered Embedded Systems
Publication: Research - peer-review › Conference article – Annual report year: 1999

Communication Scheduling for Time-Triggered Systems
Publication: Research - peer-review › Conference article – Annual report year: 1999

Schedulability-Driven Communication Synthesis for Time Triggered Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 1999

Scheduling with Optimized Communication for Time-Triggered Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 1999

Process Scheduling for Performance Estimation and Synthesis of Hardware/Software Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Scheduling Driven Partitioning of Heterogeneous Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Scheduling of Conditional Process Graphs for the Synthesis of Embedded Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Projects:

Resource Management in Fog Computing for Industrial Applications
Raagaard, M. L., Pop, P. & Madsen, J.
01/08/2017 → 31/07/2020
Project: PhD

Analysis and optimization of safety-critical real-time applications on interconnected networks
Gavrilut, V. M., Pop, P. & Jensen, C. D.
01/09/2015 → 31/10/2018
Project: PhD

Analysis and Optimization of safety-Critical Embedded Systems
Laursen, S. M., Pop, P. & Madsen, J.
01/07/2015 → 30/06/2016
Project: PhD
Compilation Techniques for Flow-based Microfluidic Biochips
Schneider, A. R., Pop, P. & Madsen, J.
15/06/2015 → 14/06/2018
Project: PhD

Test-driven model-based development of complex embedded systems
Munck, A., Madsen, J., Lindqvist, L., Mortensen, R., Pop, P., Karlsson, S., Larsen, P. G. & Nielsen, P. Ø.
01/08/2013 → 01/05/2017
Project: PhD

Hardware/Software tradeoffs in Real-Time Multiprocessor Platforms
01/04/2013 → 26/10/2016
Project: PhD

Evolvable Smartphone-based Point-of-Care Systems for In-Vitro Diagnostics
01/02/2013 → 02/11/2016
Project: PhD

SafeCores InfiniT Mini Project
Stassen, F., Pop, P., Todirica, E. A. & Petersen, B.
01/06/2012 → 31/01/2013
Project

Functional Safety for Industrial Components
Stassen, F., Todirica, E. A., Pop, P. & Petersen, B.
01/02/2012 → 31/03/2013
Project

Certifiable Java for Embedded Systems
15/03/2011 → 25/09/2014
Project: PhD

Multi-objective Design Space Exploration for (re)-configurable heterogeneous Multi-ASIP SoC platforms
01/11/2010 → 23/01/2015
Project: PhD

Design Space Exploration for Application Mapping onto Heterogeneous Multiprocessor ASIPs
Iordache, G. V., Pop, P. & Madsen, J.
15/10/2010 → 15/05/2011
Project: PhD

Synthesis of Mixed-Criticality Applications on Multi-Core Systems to Reduce Certification Costs
Tamás-Selicean, D., Pop, P., Madsen, J., Schoeberl, M., Ademaj, A. & Chakraborty, S.
01/09/2010 → 20/03/2014
Project: PhD

Architecture concepts for improving programmability of multi-core architectures
Schleuniger, P., Karlsson, S., Madsen, J., Pop, P., Grahn, H. & Ramirez, A.
15/06/2010 → 26/05/2014
Project: PhD
Design Methods for Droplet-Based Microfluidic Biochips with Operation Variability
Alistar, M., Pop, P., Madsen, J., Bille, P., Brisk, P. & Ho, T.
01/01/2010 → 24/06/2014
Project: PhD

System-Level Design to Support Early Design Stages and Evolvable Development of Embedded Systems
Gan, J., Pop, P., Madsen, J., Nannarelli, A., Curescu, C. & Popentiu, F.
15/12/2009 → 26/05/2014
Project: PhD

System-Level Design of Continuous Flow Microfluidic Biochips
15/09/2009 → 07/03/2013
Project: PhD

Nordplus Framework Programme for Higher Education
Stassen, F., Pop, P. & Madsen, J.
01/09/2009 → 31/08/2013
Project

Analysis and Optimization of Embedded Systems
Saraswat, P. K., Pop, P. & Madsen, J.
01/08/2008 → 30/11/2010
Project: PhD

Adaptability and Autonomy in Embedded Systems
Boesen, M. R., Madsen, J., Pop, P., Sparsø, J., Codinachs, D. M. & Tempesti, G.
01/06/2008 → 28/09/2011
Project: PhD

A Framework for Modeling, Simulation and Design Space Exploration of Digital Microfluidic Biochips
01/02/2008 → 31/08/2011
Project: PhD

A Flexible Audio SoC Design Methodology
Tranberg-Hansen, A. S., Madsen, J., Pop, P., Eles, P. & Lindwer, M.
01/12/2007 → 31/08/2011
Project: PhD

Power and Thermal Management of System-on-chips
Liu, W., Nannarelli, A., Madsen, J., Pop, P., Alonso, D. A. & Tisserand, A.
15/10/2007 → 01/06/2011
Project: PhD

Network-on-chip: Applikationer og topologioptimering
Stuart, M. B., Sparsø, J., Nannarelli, A., Pop, P., Jantsch, A. & Pimentel, A. D.
01/10/2006 → 30/06/2010
Project: PhD