

2012 Ninth European Dependable Computing Conference

(EDCC 2012)

**Sibiu, Romania
8-11 May 2012**



**IEEE Catalog Number: CFP1281A-PRT
ISBN: 978-1-4673-0938-7**

2012 Ninth European Dependable Computing Conference

EDCC 2012

Table of Contents

Message from the General Chair	viii
Message from the Program Committee Chair	ix
Committees	xi
External Reviewers	xiv

Session 1: Distributed Protocols

CADA: Collaborative Auditing for Distributed Aggregation	1
<i>José Valerio, Pascal Felber, Martin Rajman, and Etienne Rivière</i>	
Swarm Synthesis of Convergence for Symmetric Protocols	13
<i>Ali Ebnenasir and Aly Farahat</i>	
An Eventual alpha Partition-Participant Detector for MANETs	25
<i>Léon Lim and Denis Conan</i>	

Session 2: Software and Data Replication

From Byzantine Consensus to BFT State Machine Replication: A Latency-Optimal Transformation	37
<i>João Sousa and Alysson Bessani</i>	
Eliminating Single Points of Failure in Software-Based Redundancy	49
<i>Peter Ulbrich, Martin Hoffmann, Rüdiger Kapitza, Daniel Lohmann, Wolfgang Schröder-Preikschat, and Reiner Schmid</i>	
A Mirrored Data Structures Approach to Diverse Partial Memory Replication	61
<i>Ryan M. Lefever, Vikram S. Adve, and William H. Sanders</i>	

Session 3: Embedded Systems and Critical Infrastructures

Testing the Input Timing Robustness of Real-Time Control Software for Autonomous Systems	73
<i>David Powell, Jean Arlat, Hoang Nam Chu, Félix Ingrand, and Marc-Olivier Killijian</i>	

Analysis of Electric Power Systems Accounting for Interdependencies in Heterogeneous Scenarios	84
<i>Silvano Chiaradonna, Felicita Di Giandomenico, and Nicola Nostro</i>	
Log Analytics for Dependable Enterprise Telephony	94
<i>Chaunwen Chen, Navjot Singh, and Shalini Yajnik</i>	
Session 4: Security in Large Scale Systems	
Security of Electrostatic Field Persistent Routing: Attacks and Defense Mechanisms	102
<i>Oliviu C. Ghica, Cristina Nita-Rotaru, Goce Trajcevski, and Peter Scheuermann</i>	
AnKLe: Detecting Attacks in Large Scale Systems via Information Divergence	114
<i>Emmanuelle Anceaume, Yann Busnel, and Sébastien Gambs</i>	
The Provenance of WINE	126
<i>Tudor Dumitras and Petros Efstathopoulos</i>	
Session 5: Safety-Critical Systems	
Leveraging Multi-core Computing Architectures in Avionics	132
<i>Jan Nowotsch and Michael Paulitsch</i>	
Timed Broadcast via Off-the-Shelf WLAN Distributed Coordination Function for Safety-Critical Systems	144
<i>B. Malinowsky, J. Grønbaek, H.P. Schwefel, A. Ceccarelli, A. Bondavalli, and E. Nett</i>	
Formal Development of Critical Multi-agent Systems: A Refinement Approach	156
<i>Inna Pereverzeva, Elena Troubitsyna, and Linas Laibinis</i>	
Session 6: Dependability and Performance Benchmarking	
Experimental Analysis of Binary-Level Software Fault Injection in Complex Software	162
<i>Domenico Cotroneo, Anna Lanzaro, Roberto Natella, and Ricardo Barbosa</i>	
Changeloads for Resilience Benchmarking of Self-Adaptive Systems: A Risk-Based Approach	173
<i>Raquel Almeida and Marco Vieira</i>	
Exploring Uncertainty of Delays as a Factor in End-to-End Cloud Response Time	185
<i>Anatoliy Gorbenko, Vyacheslav Kharchenko, Seyran Mamutov, Olga Tarasyuk, and Alexander Romanovsky</i>	
Session 7: Failure Detection and Diagnosis	
A Time-Free Byzantine Failure Detector for Dynamic Networks	191
<i>Fabiola Greve, Murilo Santos de Lima, Luciana Arantes, and Pierre Sens</i>	
MultiPathPrivacy: Enhanced Privacy in Fault Replication	203
<i>Pedro Louro, João Garcia, and Paolo Romano</i>	

Applying Data Mining for Detecting Anomalies in Satellites	212
<i>Denise Rotondi Azevedo, Ana Maria Ambrósio, and Marco Vieira</i>	

Session 8: Hardware Fault-Tolerance

Memory Mapped SPM: Protecting Instruction Scratchpad Memory in Embedded Systems against Soft Errors	218
--------------------------------------------------------------------------------------------------------------	-----

Hamed Farbeh, Mahdi Fazeli, Faramarz Khosravi, and Seyed Ghassem Miremadi

Designing Robust GALS Circuits with Triple Modular Redundancy	227
---------------------------------------------------------------------	-----

Jakob Lechner

On the Development of a Real-Time Ethernet Switch for Ultra-highly Dependable Applications	237
-----------------------------------------------------------------------------------------------------	-----

*Dumitru-Mircea Chimereț, Costel Patrascu, Sabina Anghel, Yuval Katz,
and Wilfried Steiner*

Author Index	243
---------------------------	-----