

2015 11th European Dependable Computing Conference (EDCC 2015)

**Paris, France
7 – 11 September 2015**



**IEEE Catalog Number: CFP1581A-POD
ISBN: 978-1-4673-9290-7**

**Copyright © 2015 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number: CFP1581A-POD
ISBN (Print-On-Demand): 978-1-4673-9290-7

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2015 11th European Dependable Computing Conference

EDCC 2015

Table of Contents

Message from General Chair.....	viii
Message from Programme Chair.....	ix
Conference Organization.....	x
Programme Committee.....	xi

Distinguished Papers

Flexible Intrusion Detection Systems for Memory-Constrained Embedded Systems	1
<i>Farid Molazem Tabrizi and Karthik Pattabiraman</i>	
Exploiting Synergies between Static Analysis and Model-Based Testing	13
<i>Sayali Salvi, Daniel Käestner, Christian Ferdinand, and Tom Bienmueller</i>	
Recovery for Virtualized Environments	25
<i>Frederico Cerveira, Raul Barbosa, Henrique Madeira, and Filipe Araujo</i>	

Cloud Computing Reliability and Security

Error Diagnosis of Cloud Application Operation Using Bayesian Networks and Online Optimisation	37
<i>Xiwei Xu, Liming Zhu, Daniel Sun, An Binh Tran, Ingo Weber, Min Fu, and Len Bass</i>	
Automated Evaluation of Network Intrusion Detection Systems in IaaS Clouds	49
<i>Thibaut Probst, Eric Alata, Mohamed Kaâniche, and Vincent Nicomette</i>	
Dynamic VM Dependability Monitoring Using Hypervisor Probes	61
<i>Zachary J. Estrada, Cuong Pham, Fei Deng, Lok Yan, Zbigniew Kalbarczyk, and Ravishankar K. Iyer</i>	

Dependable Embedded and Real-Time Systems

Partial Updates of AUTOSAR Embedded Applications — To What Extent?	73
<i>Hélène Martorell, Jean-Charles Fabre, Michael Lauer, Matthieu Roy, and Régis Valentin</i>	
On the Effective Use of Fault Injection for the Assessment of AUTOSAR Safety Mechanisms	85
<i>Thorsten Piper, Stefan Winter, Neeraj Suri, and Thomas E. Fuhrman</i>	
LATED: Lifetime-Aware Tag for Enduring Design	97
<i>Seyedeh Golsana Ghaemi, Amir Mahdi Hosseini Monazzah, Hamed Farbeh, and Seyed Ghassem Miremadi</i>	

Dependability Modeling and Tools

Failure Propagation Modeling Based on Contracts Theory	108
<i>Mattias Nyberg and Jonas Westman</i>	
Data Stream Clustering for Online Anomaly Detection in Cloud Applications	120
<i>Carla Sauvanaud, Guthemberg Silvestre, Mohamed Kaâniche, and Karama Kanoun</i>	
Increasing Automation in the Backporting of Linux Drivers Using Coccinelle	132
<i>Luis R. Rodriguez and Julia Lawall</i>	
Ultrafast Single Error Correction Codes for Protecting Processor Registers	144
<i>Luis-J. Saiz-Adalid, Pedro Gil, Joaquín Gracia-Morán, Daniel Gil-Tomás, and J.-Carlos Baraza-Calvo</i>	

Hardware Dependability

Microkernel Mechanisms for Improving the Trustworthiness of Commodity Hardware	155
<i>Yanyan Shen and Kevin Elphinstone</i>	
Toward a Fault-Tolerance Framework for COTS Many-Core Systems	167
<i>Peter Munk, Mohammad Shadi Alhakeem, Raphael Lisicki, Helge Parzyjegl, Jan Richling, and Hans-Ulrich Heiß</i>	
A Comparison of Inject-on-Read and Inject-on-Write in ISA-Level Fault Injection	178
<i>Behrooz Sangchoolie, Fatemeh Ayatollahi, Roger Johansson, and Johan Karlsson</i>	
Increasing the Dependability of VLSI Systems through Early Detection of Fugacious Faults	190
<i>Jaime Espinosa, David de Andrés, and Pedro Gil</i>	

Fault-Tolerance and Secure Systems and Networks

Reducing the Energy Footprint of a Distributed Consensus Algorithm	198
<i>Jehan-François Pâris and Darrell D. E. Long</i>	
Security of ISP Access Networks: Practical Experiments	205
<i>Yann Bachy, Vincent Nicomette, Eric Alata, Mohamed Kaâniche, and Jean-Christophe Courrège</i>	
Composing Patterns to Construct Secure Systems	213
<i>Paul Rimba, Liming Zhu, Len Bass, Ihor Kuz, and Steve Reeves</i>	

Characterisation, Verification and Validation Methods

Insights into the Diagnosis of System Failures from Cluster Message Logs	225
<i>Edward Chuah, Arshad Jhumka, James C. Browne, Bill Barth, and Sai Narasimhamurthy</i>	
Evaluating and Optimizing Stabilizing Dining Philosophers	233
<i>Jordan Adamek, Mikhail Nesterenko, and Sébastien Tixeuil</i>	
FAIL*: An Open and Versatile Fault-Injection Framework for the Assessment of Software-Implemented Hardware Fault Tolerance	245
<i>Horst Schirmeier, Martin Hoffmann, Christian Dietrich, Michael Lenz, Daniel Lohmann, and Olaf Spinczyk</i>	
On the Probability of Unsafe Disagreement in Group Formation Algorithms for Vehicular Ad Hoc Networks	256
<i>Negin Fathollahnejad, Risat Pathan, and Johan Karlsson</i>	
Author Index	268