



**The 43rd Annual IEEE/IFIP International Conference on Dependable  
Systems and Networks**

**24-27th June 2013, Budapest**

**Preliminary program**

**Monday 24 June**

		Workshops			Tutorials		
		DCDV Dependability of Clouds, Data Centers and Virtual Machine Technology	RSDA Reliability and Security Data Analysis	WORCS Open Resilient Human-aware Cyber-Physical Systems	WSR Systems Resilience	Tutorial 1 (Chair: Robert Schwarz)	Tutorial 2 (Chair: Allen Wood)
8:30 – 8:45	Opening Remarks	Opening Remarks <i>C. Di Martino, A. Pecchia, J. Stearley</i>	Introduction <i>M. Kaàniche</i>			P. Verissimo: <b>Beyond the glamour of Byzantine Fault Tolerance: OR why resisting intrusions means more than BFT</b> (half-day)	A. Romanovsky: <b>Correct-by-Construction Development of Dependable Systems</b> (full-day)
8:45 – 10:00	Session 1: Cloud and Data Center Networking	Session 1: Security Data Analysis and Modeling Keynote: The Role of Data for Safety Critical Systems Development and Validation <i>N. Silva (Critical Software Inc.)</i>	Session 1: Human Interactive Automated Driving Systems Keynote : Toward Vehicle Automation - ADAS The New Challenges <i>S. Boverie</i>				
	Towards SDN Enabled Network Control Delegation in Clouds <i>S. Malik, M. Montanari, J. Ho Huh, R. Babha, R. Campbell</i>	Data Fusion-Based Anomaly Detection in Networked Critical Infrastructures <i>B. Genge, C. Siaterlis, G. Karopoulos</i>	Autonomous Emergency Braking : A System-of-Systems Perspective <i>H. Kopetz, S. Poledna</i>				
	Fault-Tolerance Characteristics of Data Center Network Topologies Using Fault Regions <i>Y. Liu, J. Muppala</i>	Investigating DNS Traffic Anomalies for Malicious Activities <i>F. Yarochkin, V. Kropotov, Y. Huang, S.-Y. Kuo, G.-K. Ni, I.-Y. Chen</i>	Scalable Security Analysis in Hierarchical Attack Representation Model using Centrality Measures <i>J. B. Hong, D. S. Kim</i>				
10:00 – 10:30		Break			10:15 Chair's Welcome Remarks <i>H. Maruyama</i>		
10:30 – 12:00	Session 2: Dependability Evaluation	Session 2: Failures and Robustness Analysis	Session 2: Security	Session 1: Resilience Definitions and Research Opportunities (Chair: Patricia Longstaff)	P. Verissimo: <b>Beyond the glamour of Byzantine Fault Tolerance: OR why resisting intrusions means more than BFT</b> (cont'd)	A. Romanovsky: <b>Correct-by-Construction Development of Dependable Systems</b> (cont'd)	
	Availability Study on Cloud Computing Environments: Live Migration as a Rejuvenation Mechanism <i>M. Melo, P. Maciel, J. Araujo, R. Matos, C. Araújo</i>	Automatic Collection of Failure Data from the iOS Platform <i>M. Cinque, D. Cotroneo, C. R. Dominquez, J. L. Garrido</i>	Keynote: Detecting Cognitive State for Operators of Cyber-Physical Systems: Design of Experiments <i>R. Maxion</i>	Towards Systems Resilience <i>H. Maruyama</i>			
	Dependability Models for Designing Disaster Tolerant Cloud Computing Systems <i>B. Silva, P. Maciel, E. Tavares, A. Zimmermann</i>	Towards Evaluating the Impact of Data Quality on Service Applications <i>N. Ivaki, N. Laranjeiro, M. Vieira</i>	A Survey of Security Threats and Protection Mechanisms in Embedded Automotive Networks <i>I. Studnia, V. Nicomette, E. Alata, Y. Deswarte, M. Kaàniche, Y. Lagrouchi</i>	FORISK: Formalizing Information Security Risk and Compliance Management <i>S. Fenz, T. Neubauer, R. Accorsi, T. Koslowski</i>			
	Analysis of Bugs in Apache Virtual Computing Lab <i>F. Frattini, R. Ghosh, M. Cinque, A. Rindos, K. Trivedi</i>	Golden-run Alignment for Analysis of Robustness Testing Results: Dealing with Diagnostics Issues <i>G. Lemos, E. Martins</i>		Key Issues in Service Systems Resilience <i>K. Furuta, T. Kanno</i>			
	Authors' Panel			SCoRe: An Across-the-Board Metric for Computer Systems Resilience Benchmarking <i>R. Almeida, A.A. Neto, M. Vieira</i>			

12:00 – 13:30	Lunch				Tutorials	
	DCDV Dependability of Clouds, Data Centers and Virtual Machine Technology	RSDA Reliability and Security Data Analysis	WORCS Open Resilient Human-aware Cyber-Physical Systems	WSR Systems Resilience	Tutorial 3	Tutorial 2
13:30 – 15:00	Session 3: Mobile and Cloud Computing	Session 3: Data-Driven Dependability	Session 3: Smart Cooperative Driving	Session 2: Modeling Resilience (Chair: Thomas Koslowski)	R. Baldoni: Living in a trustworthy cyberspace	A. Romanovsky: Correct-by-Construction Development of Dependable Systems (cont'd)
	Model-based Performance Analysis of Local Re-execution Scheme in Offloading System <i>Q. Wang, H. Wu, K. Wolter</i>	Reducing Service Failures by Failure and Workload aware Load Balancing in SaaS Clouds <i>A. Roy, R. Ganesan, D. Dash, S. Sarkar</i>	On Reliability Analysis of Leader Election Protocols for Virtual Traffic Lights <i>N. Fathollahneja, E. Villani, R. Pathan, R. Barbosa, J. Karlsson</i>	Model-Based Evaluation of System Resilience <i>J. Meyer</i>		
	DataFlasks: an epidemic dependable key-value substrate <i>F. Maia, M. Matos, R. Vilaça, J. Pereira, R. Oliveira, E. Rivière</i>	Storage-Efficient Data Replica Number Computation for Multi-level Priority Data in Distributed Storage System <i>C. Cai, C. Abad, R. Campbell</i>	The KARYON project : Predictable and Safe Coordination in Cooperative Vehicular Systems <i>A. Casimiro, J. Kaiser, E. M. Schiller, P. Costa, J. Parizi, R. Johansson, R. Librino</i>	Resilience Modeling by Means of a Set of Recursive Functions <i>M. T. Signes, J. M. García, H. Mora, J. Mora</i>		
	Lilliput meets Brobdingnagian: Data Center Systems Management through Mobile Devices <i>S. Bagchi, F. Arshad, J. Rellermeyer, T. Osiecki, M. Kistler, A. Gheith</i>	Predicting Job Completion Times Using System Logs in Supercomputing Clusters <i>X. Chen, C.-D. Lu, K. Pattabiraman</i>	Driver Performance in the Presence of Adaptive Cruise Control Related-Failures <i>J. Nilsson, N. Strand, P. Falcone, J. Vinter</i>	Behavioral aspects for agent-based models of resilient urban systems <i>T. Brudermann, Y. Yamagata</i>		
		Reliable Mission Deployment in Vulnerable Distributed Systems <i>M. Albanese, S. Jajodia, R. Jhawar, V. Piuri</i>				
15:00 – 15:15	Break					
15:15 – 17:00	Session 4: Virtualization and Cloud	Session 4: Data-Driven Security	Session 4: Panel and Workshop Wrap-up	Session 3: Building Resilient Systems (Chair: Kazuhiro Minami)		A. Romanovsky: Correct-by-Construction Development of Dependable Systems (cont'd)
	Increasing the Trustworthiness of Commodity Hardware Through Software <i>K. Elphinstone, Y. Shen</i>	Practical Experiences with Real-world Systems: Security in the World of Reliable and Safe Systems <i>N. Silva, R. Lopes</i>	Panel: Human Interactive Autonomous Driving: Future Trends, Resilience Challenges and Research perspectives <i>Panelists: S. Boverie, J. Karlsson, H. Kopetz, J. Vinter</i>	An Intrusion-Tolerant Firewall Design for Protecting SIEM Systems <i>M. Garcia, N. Neves, A. Bessani</i>		
	Intrusion Detection and Honeypots in Nested Virtualization Environments <i>M. Beham, M. Vlad, H. P. Reiser</i>	Interoperability in Fingerprint Recognition - A Large Scale Empirical Study <i>L. Lugini, E. Marasco, B. Cukic, I. Gashi</i>	Workshop Wrap-up and Conclusions	Community-based Resilient Electricity Sharing: Optimal Spatial Clustering <i>Y. Yamagata, H. Seya</i>		
	Addressing Memory Exhaustion Failures in Virtual Machines in a Cloud Environment <i>J. Navas Molina, S. Mishra</i>	Authors' Panel		Cyber Security Problem based on Multi-Objective Distributed Constraint Optimization Technique <i>T. Okimoto, N. Ikegai, T. Ribeiro, K. Inoue, H. Okada, H. Maruyama</i>		
		Concluding remarks <i>C. Di Martino, A. Pecchia, J. Stearley</i>				
18:30 – 20:00	Welcome reception Location: Hungarian Academy of Sciences					

Tuesday 25 June

8:15 – 9:00	Welcome address	
9:00 – 10:15	Plenary Session	
	<b>Keynote address 1. - Ken Birman: Adapting High Assurance Distributed Computing Techniques for Cloud-Scale Settings</b> (Chair: George Candea)	
10:15 – 10:45	Presentation of the Carter Award Winner	
	Hector: Detecting Resource-Release Omission Faults in Error-Handling Code for Systems Software <i>S. Saha, J.-P. Lozi, G. Thomas, J. Lawall, G. Muller</i>	
10:45 – 11:15	Break	
11:15 – 12:45	<b>DCCS: Clouds We Can Trust</b> (Chair: Paulo Verissimo)	<b>PDS: Operating Systems Security</b> (Chair: Marco Vieira)
	CloudPD: Problem Determination and Diagnosis in Shared Dynamic Clouds <i>B. Sharma, P. Jayachandran, A. Verma, C. Das</i>	DRIP: A Framework for Purifying Trojaned Kernel Drivers <i>Z. Gu, W. N. Sumner, Z. Deng, X. Zhang, D. Xu</i>
	Mitigating Access-Driven Timing Channels in Clouds using StopWatch <i>P. Li, D. Gao, M. Reiter</i>	SPECTRE: A Dependable Introspection Framework via System Management Mode <i>F. Zhang, K. Leach, K. Sun, A. Stavrou</i>
	EagleEye: Towards Mandatory Security Monitoring in Virtualized Datacenter Environment <i>Y-S. Wu, P-K. Sun, C-C. Huang, S-F. Lai, Y-Y. Chen, S-J. Lu</i>	Manipulating Semantic Values in Kernel Data Structures: Attack Assessments and Implications <i>A. Prakash, E. Venkataramani, H. Yin, Z. Lin</i>
12:45 – 14:00	Lunch	
14:00 – 15:30	<b>DCCS: Debugging and Diagnosis</b> (Chair: Ashvin Goel)	<b>PDS: Stochastic Modeling Techniques</b> (Chair: Lydia Chen)
	Why is My Smartphone Slow? On The Fly Diagnosis of Poor Performance on Mobile Internet <i>C. Amrutkar, M. Hiltunen, T. Jim, K. Joshi, O. Spatscheck, P. Traynor, S. Venkataraman</i>	A Logic for Model-Checking Mean-Field Models <i>A. Kolesnichenko, A. Remke, P.-T. de Boer, B. Haverkort</i>
	Lightweight Message Tracing for Debugging Wireless Sensor Networks <i>V. Sundaram, P. Eugster</i>	Lumpability of Fluid Models with Heterogeneous Agent Types <i>G. Iacobelli, M. Tribastone</i>
	Automating the Debugging of Datacenter Applications with ADDA <i>C. Zamfir, G. Altekar, I. Stoica</i>	Fitting Second-Order Acyclic Marked Markovian Arrival Processes <i>A. Sansottera, G. Casale, P. Cremonesi</i>
15:30 – 16:00	Break	
16:00 – 17:30	<b>DCCS: Distributed Dependability</b> (Chair: Neeraj Suri)	<b>PDS: Virtualization</b> (Chair: Boudewijn Haverkort)
	Fault Detection and Localization in Distributed Systems using Invariant Relationships <i>A. Sharma, H. Chen, M. Ding, K. Yoshihira, G. Jiang</i>	SIDE: Isolated and Efficient Execution of Unmodified Device Drivers <i>Y. Sun, T. Chiueh</i>
	Increasing Network Resiliency by Optimally Assigning Diverse Variants to Routing Nodes <i>A. Newell, D. Obenshain, T. Tantillo, C. Nita-Rotaru, Y. Amir</i>	Security Implications of Memory Deduplication in a Virtualized Environment <i>J. Xiao, Z. Xu, H. Huang, H. Wang</i>
	Distal: A Framework for Implementing Fault-tolerant Distributed Algorithms <i>M. Biely, P. Delgado, Z. Milosevic, A. Schiper</i>	State-of-the-Practice in Data Center Virtualization: Toward a Better Understanding of VM Usage <i>R. Birke, A. Podzimek, L. Y. Chen and E. Smirni</i>

## Wednesday 26 June

8:30 – 9:45	<b>Plenary Session</b>	
	<b>Keynote address 2. - Rashik Parmar: A Glimpse into the Future of Dependable Systems</b> (Chair: Doug Blough)	
9:45 – 10:00	Break	
10:00 – 11:30	<b>DCCS: Coping with Errors</b> (Chair: Saurabh Bagchi) Generative Software-based Memory Error Detection and Correction for Operating System Data Structures <i>C. Borchert, H. Schirmeier, O. Spinczyk</i>	<b>PDS: Memory and Caches</b> (Chair: Karama Kanoun) FTSPM: A Fault-Tolerant Scratchpad Memory <i>A. Mahdi, H. Monazzah, H. Farbeh, S. G. Miremadi, M. Fazeli, H. Asadi</i>
	An Algorithmic Approach to Error Localization and Partial Recomputation for Low-Overhead Fault Tolerance <i>J. Sloan, G. Bronevetsky, R. Kumar</i>	PHYS: Profiled-Hybrid Sampling for Soft Error Reliability Benchmarking <i>J. Suh, M. Annavaram, M. Dubois</i>
	simFI: From Single to Simultaneous Software Fault Injections <i>S. Winter, M. Tretter, B. Sattler, N. Suri</i>	Error Detector Placement for Soft Computation <i>A. Thomas, K. Pattabiraman</i>
11:45 – 12:00	<b>Special Address: Marina von Neumann</b> (Chair: Roberto Baldoni)	
12:00 – 12:45	Lunch	
12:45 – 14:15	<b>DCCS: Seamless, Graceful, and Transparent</b> (Chair: Gilles Muller) Chasing the Optimum in Replicated In-memory Transactional Platforms via Protocol Adaptation <i>M Couceiro, P. Ruivo, P. Romano, L. Rodrigues</i>	<b>PDS: Experimental Studies and Data Analysis</b> (Chair: Felicita di Giandomenico) A Practical Characterization of a NASA Spacecube Application through Fault Emulation and Laser Testing <i>J. P. Walters, K. Zick, M. French</i>
	Seamless Kernel Updates <i>M. Siniavine, A. Goel</i>	An Empirical Investigation of Fault Repairs and Mitigations in Space Mission System Software <i>J. Alonso, M. Grottke, A. Nikora, K. Trivedi</i>
	Application-Driven TCP Recovery and Non-Stop BGP <i>R. Surton, K. Birman, R. van Renesse</i>	Reading between the Lines of Failure Logs: Understanding How HPC Systems Fail <i>N. El-Sayed, B. Schroeder</i>
14:15 – 14:30	Break	
14:30 – 15:30	<b>DCCS: The Solid Bottom of the System Stack</b> (Chair: Zbigniew Kalbarczyk) Operating SECCED-Based Caches at Ultra-Low Voltage with FLAIR <i>M. Qureshi, Z. Chishti</i>	<b>PDS: Wireless Networks</b> (Chair: Evgenia Smirni) Guaranteeing Proper-Temporal-Embedding Safety Rules in Wireless CPS: A Hybrid Formal Modeling Approach <i>F. Tan, Y. Wang, Q. Wang, L. Bu, R. Zheng, N. Suri</i>
	Stress Balancing to Mitigate NBTI Effects in Register Files <i>H. Amrouch, T. Ebi, J. Henkel</i>	Wirelesschart Modeling And Performance Evaluation <i>A. Remke, X. Wu</i>
15:50 – 22:30	<b>Excursion and Banquett</b>	

Thursday 27 June

Plenary Session

8:30 – 9:45

Keynote address 3. - László Lovász: Large Networks and Their Mathematical Theory

(Chair: András Pataricza)

9:45 – 10:15

Break

10:15 – 11:45

DCCS: Keeping Safe in a Connected World

(Chair: Cristina Nita-Rotaru)

PDS: Storage Systems

(Chair: Peter Kemper)

Fast Abstracts-1

(Chair: Elias Duarte)

Detecting Malicious Landing Pages in Malware Distribution Networks  
*G. Wang, J. Stokes, C. Herley, D. Felstead*

Improving SSD Reliability with RAID via Elastic Striping and Anywhere Parity  
*J. Kim, J. Choi, D. Lee, S. H. Noh*

A Review of Cloud Deployment Models For E-Learning Systems  
*E. Leloglu, T. Ayav, B. G. Aslan*

Redefining Web Browser Principals with a Configurable Origin Policy  
*Y. Cao, V. Rastogi, Z. Li, Y. Chen, A. Moshchuk*

Geo-Replicated Storage with Scalable Deferred Update Replication  
*D. Sciascia, F. Pedone*

A View on the Past and Future of Fault Injection  
*N. Silva, R. Barbosa, J. C. Cunha, M. Vieira*

Practical Automated Vulnerability Monitoring Using Program State Invariants  
*C. Giuffrida, L. Cavallaro, A. S. Tanenbaum*

Consistency or Latency? A Quantitative Analysis of Replication Systems Based on Replicated State Machines  
*X. Wang, H. Sun, T. Deng*

An Adaptive Approach to Dependable Circuits for a Digital Power Control  
*A Saysanasongkham, K. Imai, M. Aarai, S. Fukumoto, K. Wada*

Modeling and Analysing Operation Processes for Dependability  
*X. Xu, L. Zhu, J. Li, L. Bass, Q. Lu, M. Fu*

Design of Event-Based Intrusion Detection System on OpenFlow Network  
*Y.-Li Hu, W.-B. Su, L.-Y. Wu, Y. Huang, S.-Y. Kuo*

Evaluating Xilinx SEU Controller Macro for Fault Injection  
*J. L. Nunes, J. C. Cunha, R. Barbosa, M. Zenha-Rela*

11:45 – 12:45

Lunch

12:45 – 14:15

Student Papers: Software & Network Dependability

(Chair: Takashi Nanya)

PDS: Network security

(Chair: Ilker Gashi)

Fast Abstracts-2

(Chair: Dong Seong Kim)

A Framework for Runtime V&V in Business-Critical Service Oriented Architectures  
*C. Areias*

Uniform Node Sampling Service Robust Against Collusions of Malicious Nodes  
*E. Anecaume, Y. Busnel, B. Sericola*

Complementing Static and Dynamic Analysis Approaches For Better Network Defense  
*H. Pareek*

Barley: Modelling Program Behavior with Resource Usage  
*K. Leach*

Implementing the ADVISE Security Modeling Formalism in MOBIUS  
*M. Ford, K. Keeffe, E. LeMay, W. Sanders, C. Muehrcke*

Network Traffic Anomaly Detection based on Growing Hierarchical SOM  
*S.-Y. Huang, Y.-N. Huang*

Fault-Tolerant Broadcast Algorithms for the Virtual Hypercube Topology  
*L. A. Rodrigues*

Crossing the Threshold: Detecting Network Malfeasance via Sequential Hypothesis Testing  
*S. Krishnan, T. Taylor, F. Monrose, J. McHugh*

Performability analysis of RAID10 versus RAID6  
*F. Machida, J. Xiang, K. Tadano, Y. Maeno, T. Horikawa*

Quantitative Analysis of the Reliability of Fault Tolerant Processors  
*J. Na, D. Lee*

The Architecture of a Resilience Infrastructure for Computing and Communication Systems  
*A. Avizienis*

Towards Secure Monitoring and Control Systems: Diversify!  
*D. Cotroneo, A. Pecchia, S. Russo*

14:15 – 14:30

Break

14:30 – 15:30

Student Papers: Hardware Dependability

(Chair: Yair Amir)

PDS: Internet security

(Chair: Robin Berthier)

Improving the Dependability of FPGA-based real-time embedded systems with Partial Dynamic Reconfiguration  
*J. L. Nunes*

Locality Matters: Reducing Internet Traffic Graphs Using Location Analysis  
*A. Berger, S. Rührup, W. Gansterer, O. Jung*

Detecting and Tolerating Data Corruptions Due to Device Driver Defects  
*F. Fucci*

Evasive Bots Masquerading as Human Beings on the Web  
*J. Jin, J. Offutt, N. Zheng, F. Mao, A. Koehl, H. Wang*

IOCheck: A Framework to Enhance the Security of I/O Devices at Runtime  
*F. Zhang*

15:30 – 16:30

Technical Committee Meeting (Open to All)