

# **2015 IEEE International Conference on Dependable Systems and Networks Workshops (DSN-W 2015)**

**Rio de Janeiro, Brazil  
22-25 June 2015**



IEEE Catalog Number: CFP1541K-POD  
ISBN: 978-1-4673-8045-4

# **2015 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks Workshops**

## **DSN-W 2015**

### **Table of Contents**

Workshop Organization.....	ix
Program Committee.....	x
External Reviewers .....	xii

---

### **International Workshop on Model-Based Design for Cyber-Physical Systems (MB4CP 2015)**

MB4CP 2015 Keynote I: Dependability Modeling and Analysis Methods Integrated in Model-Driven Industrial Architectural Frameworks .....	1
<i>Andrea Bondavalli</i>	
MB4CP 2015 Keynote II: Resilience of Cyber-Physical Energy Systems .....	3
<i>Paulo Esteves Veríssimo</i>	

### **Workshop on Dependability Issues on SDN and NFV (DISN 2015)**

SeReNe: On Establishing Secure and Resilient Networking Services for an SDN-based Multi-tenant Datacenter Environment .....	4
<i>Chun-Jen Chung, Tianyi Xing, Dijiang Huang, Deep Medhi, and Kishor Trivedi</i>	
Video on Demand Hosted in Private Cloud: Availability Modeling and Sensitivity Analysis .....	12
<i>Rosangela Melo, Maria Clara Bezerra, Jamilson Dantas, Rubens Matos, Ivanildo Melo, and Paulo Maciel</i>	
Implementation of Failure Detector Based on Network Function Virtualization .....	19
<i>Rogerio C. Turchetti and Elias Procopio Duarte</i>	

# **International Workshop on Recent Advances in the Dependability Assessment of Complex systems (RADIANCE 2015)**

RADIANCE 2015 Keynote: Challenges in Engineering Dependable Self-Adaptive System .....	26
<i>Bradley Schmerl</i>	

## **RADIANCE 2015: Session I – Security and Dependability Analysis**

Service Deterioration Analysis (SDA): An Early Development Phase	
Dependability Analysis Method .....	27
<i>Georg Macher, Andrea Höller, Harald Sporer, Eric Armengaud, and Christian Kreiner</i>	
Quantifying the Impact of External Attacks on a Distributed Automatic Track Warning System .....	33
<i>Leonardo Montecchi, Paolo Lollini, and Andrea Bondavalli</i>	

## **RADIANCE 2015: Session II – Agile Development and Natural Language Requirements**

An Approach to Clustering and Sequencing of Textual Requirements .....	39
<i>Ricardo Barbosa, Daniele Januario, Ana Estela Silva, Regina Moraes, and Paulo Martins</i>	
Semi-automatic Generation of Extended Finite State Machines from Natural Language Standard Documents .....	45
<i>Juliana Galvani Greghi, Eliane Martins, and Ariadne Maria Brito Rizzoni Carvalho</i>	

## **RADIANCE 2015: Session III – Safety Assessment in Industrial Systems**

An Asset-Based Development Approach for Availability and Safety Analysis on a Flood Alert System .....	51
<i>Fumio Machida, Jianwen Xiang, Kumiko Tadano, and Shigeru Hosono</i>	
Cost Prediction for V&V and Certification Processes .....	57
<i>Francesco Brancati, András Pataricza, Nuno Silva, Ábel Hegedüs, Laszlo Gonczy, Andrea Bondavalli, and Rosaria Esposito</i>	
Assessment of Defect Type influence in Complex and Integrated Space Systems: Analysis Based on ODC and ISVV Issues .....	63
<i>Nuno Silva, Marco Vieira, Dario Ricci, and Domenico Cotroneo</i>	

## **RADIANCE 2015: Session IV – Fault Injection for Complex Systems**

A Virtual Fault Injection Framework for Reliability-Aware Software Development .....	69
Andrea Höller, Georg Macher, Tobias Rauter, Johannes Iber, and Christian Kreiner	
Towards Assessing Representativeness of Fault Injection-Generated Failure Data for Online Failure Prediction .....	75
Ivano Irrera and Marco Vieira	
Studying the Propagation of Failures in SOAs .....	81
Cristiana Areias, João Carlos Cunha, and Marco Vieira	

## **First Workshop on Safety and Security of Intelligent Vehicles (SSIV 2015)**

### **SSIV 2015: Session I - Safety and Security of Intelligent Vehicles**

SSIV 2015 Keynote I: On the Security of Critical Cyber-Physical Systems .....	87
Roberto Gallo	
Using Data Integrity as an Improvement Characteristic to Assess the Safety of ADS-B-based Systems .....	88
Daniel Baraldi Sesso, Lucio F. Vismari, Antonio V. Silva Neto, Paulo S. Cugnasca, and João B. Camargo Junior	

### **SSIV 2015: Session II - Collision Avoidance and Control on Automotive and Aerial Vehicles**

A Learning-Based Autonomous Control System Approach for Collision Avoidance within an Unmanned Aircraft .....	96
Thiago Toshio Matsumoto, Lúcio Flávio Vismari, Ricardo Alexandre Veiga Gimenes, Jorge Rady de Almeida Junior, and João B. Camargo Junior	
Using Simulation, Fault Injection and Property-Based Testing to Evaluate Collision Avoidance of a Quadcopter System .....	104
Benjamin Vedder, Jonny Vinter, and Magnus Jonsson	
Advantages in Crash Severity Prediction Using Vehicle to Vehicle Communication .....	112
Dennis Böehmlaender, Sinan Hasirlioglu, Vitor Yano, Christian Lauerer, Thomas Brandmeier, and Alessandro Zimmer	

Heading Controller for a Fixed Wing UAV with Reduced Control Surfaces Based on ANFIS .....	118
<i>Ian de Medeiros Esper and Paulo Fernando Ferreira Rosa</i>	

## **SSIV 2015: Session III - Design Issues for Autonomous Cooperating Objects**

SSIV 2015 Keynote II: From Embedded Systems to Autonomous Cooperating Objects .....	124
<i>Paulo Veríssimo</i>	
Model-Based Membership Verification in Vehicular Platoons .....	125
<i>Mikael Asplund</i>	
Software Faults Emulation at Model-Level: Towards Automated Software FMEA .....	133
<i>Valentina Bonfiglio, Leonardo Montecchi, Ivano Irrera, Francesco Rossi, Paolo Lollini, and Andrea Bondavalli</i>	

## **SSIV 2015: Session IV - Automotive Safety through Environment Awareness**

The Use of a Graphic Processing Unit (GPU) in a Real Time Visual Odometry Application .....	141
<i>Jaime Armando Delgado Vargas and Paulo Roberto Gardel Kurka</i>	
Improving Intelligent Vehicle Dependability by Means of Infrastructure-Induced Tests .....	147
<i>Wilfried Steiner, Ayhan Mehmed, and Sasikumar Punnekkat</i>	
<b>Author Index .....</b>	<b>153</b>