

# EDCC 2012

Ninth European Dependable Computing Conference

8-11 May 2012  
Sibiu, Romania

PROGRAM



## Message from the General Chair

Welcome to the 9<sup>th</sup> European Dependable Computing Conference (EDCC-9), held at the Lucian Blaga University of Sibiu, Romania. From its first edition, held in 1994, EDCC has become the premier European conference for researchers and practitioners working in the area of dependable computing. Today computing industry is facing new challenges, from higher error rates experienced by nanometric devices to increased dependability requirements for the cloud computing. The 9<sup>th</sup> edition of EDCC will include three workshops, followed by regular paper presentations, industrial track papers, practical experience reports, short abstracts, and a student forum. The main topics covered by this year conference range from software robustness to multi-agent systems and security, and from mirrored data structures to triple modular redundancy and fault injection.

The city of Sibiu is a major historic and cultural center of Romania. The existence of the first settlements in the area was documented in 1191. In 2007 Sibiu was designated European Capital of Culture, along with Luxemburg. Several historic monuments, some listed as UNESCO world heritage sites, are nearby Sibiu. Lucian Blaga University has over twenty thousand students, a strong engineering department, as well as science, law, and medical departments. I hope participants to the conference will enjoy the technical and social programs and will take the time to visit Sibiu and the beautiful surrounding area.

I would also like to use this opportunity to thank all members of the organizing committee, Miguel Correia, the Program Chair, Ioana Moisil, the Local Arrangements Chair, Vasile Motoc, the Finance Chair, Marc-Olivier Killijian and Daniel Volovici, the Publicity Chairs, Marcelo Pasin, the Publications Chair, Luciana Arantes, the Workshops Chair, Marco Vieira, the Fast Abstracts Chair, Ilir Gashi, the Student Forum Chair, Saurabh Bagchi, Xavier Défago, and Lau Cheuk Lung, International Liaisons, as well as all members of the Program Committee, and all volunteers. Last but not least, thanks to Karama Kanoun, the Chair of the EDCC Steering Committee, for her continuous support.

Cristian Constantinescu

*Advanced Micro Devices Inc.*

**General Chair of EDCC-9**

## Message from the Program Committee Chair

It is a pleasure to write a few words introducing the Proceedings of the 9<sup>th</sup> European Dependable Computing Conference (EDCC-9), held in the historical city of Sibiu, Romania, in May 2012.

This volume is a good picture of what is EDCC: a well-established conference that brings together Dependability researchers throughout Europe (but not only). The volume also shows the complexity and diversity of an area that brings together academia and industry, covers hardware and software, and spans most computer science and engineering subareas: systems, languages, formal methods, algorithms, modeling, etc., etc.

The conference attracted 60 submissions. They received 5 reviews, with a few exceptions, most from PC members but also from external reviewers. As usual in EDCC, the final selection of the papers was done in a face to face meeting that gathered a majority of the Program Committee members in Lisboa, Portugal, in January 9 and 10, 2012. The selection process was quite competitive, with an acceptance rate of 35% of regular papers, 18 out of 52. The Program Committee accepted also 2 industrial track papers, 3 practical experience reports, and one prototype-tool description paper.

My task as PC chair was much easier due to the fantastic work of the Program Committee members. It was an honor to work with such an amazing group of researchers. My thanks for each one of them.

I am also deeply thankful to Karama Kanoun, the EDCC Steering Committee Chair, and to Cristian Constantinescu, the EDCC-9 General Chair. Both were a permanent support during the long process that produced the program of the conference and this volume of proceedings. Marcelo Pasin (Publications Chair) did a great work in this regard. François Taitani (EDCC-8 PC chair) provided essential information and assistance.

My thanks go also to all the members of the EDCC Steering Committee, to Luciana Arantes (Workshops Chair), Marco Vieira (Fast Abstract Chair), Ilir Gashi (Student Forum Chair), Saurabh Bagchi, Xavier Défago and Lau Cheuk Lung (International Liaisons), Marc-Olivier Killijian and Daniel Volovici (Publicity Chairs), the organizers of the three workshops held jointly with the conference, and to the external reviewers.

A final thanks to all the authors who submitted papers. The conference would not exist without their hard work.

Miguel Pupo Correia

*Instituto Superior Técnico, INESC-ID*

**Program Committee Chair of EDCC-9**

<b>May 8</b>	<b>1st European Workshop on AppRoaches to MObiquiTous Resilience (ARMOR)</b>
8:30-9:00	Registration
11:00-12:30	<b>Session 1</b>
11:00-11:30	Locanym: Towards Privacy-Preserving Location-Based Systems <i>Sebastien Gambs, Marc-Olivier Killijian, Matthieu Roy and Moussa Traore.</i>
11:30-12:00	A Logging Framework for the On-Line Failure Analysis of Android Smart Phones <i>Marcello Cinque, Domenico Cotroneo and Alessandro Testa.</i>
12:00-12:30	An Aspect-Oriented Approach to Face Neighbour Saturation Issues in Proactive Ad hoc Routing Protocols: olsrd as a case study <i>Antonio Bustos Rodríguez, Jesús Frigal, David de Andrés and Juan-Carlos Ruiz.</i>
12:30-14:00	Lunch
14:00-15:30	<b>Session 2</b>
14:00-14:30	Stopping ongoing broadcasts in large MANETs <i>Rui Lima, Carlos Baquero and Hugo Miranda.</i>
14:30-15:00	Towards changing the user perception of mobile communications through geotagged information <i>Miquel Martinez, David de Andrés and Juan-Carlos Ruiz.</i>
15:00-15:30	Optimizing the Quality of Dynamic Context Subscriptions for Scarce Network Resources <i>Ahmed Shawky, Rasmus Olsen, Jens Pedersen and Hans-Peter Schwefel.</i>
15:30-16:00	AMORES: An Architecture for MObiquitous RESilient Systems <i>Emmanuelle Anceaume, Sebastien Gambs, Gilles Guette, Michel Hurfin, Christian Artigues, Yves Deswarte, Jérémie Guiochet, Marie-José Huguet, Marc-Olivier Killijian, David Powell, Matthieu Roy, Christophe Bidan, Nicolas Prigent and Frédéric Schettini.</i>
16:00-16:30	Break
16:30-17:30	<b>Session 3</b>
16:30-17:30	Panel: Future challenges for improving the resilience of mobile systems <i>all attendees</i>

<b>May 8</b>	<b>1st European Workshop on Dependable Cloud Computing (EWDCC)</b>
8:30-9:00	Registration
9:00-10:30	<b>Session 1</b>
9:00-10:00	Keynote: The Cosca PaaS platform: on the way to flexible and dependable cloud computing <i>Franz Hauck, Institute of Distributed Systems, University of Ulm, Germany</i>
10:00-10:30	Bridging the security drawbacks of virtualized network resource provisioning model <i>Ayush Sharma, Volker Fusenig, Ingmar Schen (Fraunhofer, Germany), Anand Kannan (KTH, Sweden)</i>
10:30-11:00	Break
11:00-12:30	<b>Session 2</b>
11:00-11:30	Securing Cloud-based Computations against Malicious Providers <i>Adil Bouti, Jorg Keller, FernUniversitat in Hagen</i>
11:30-12:00	Project mOSAIC: How to build a reliable mOSAIC of multiple Cloud services <i>Dana Petcu, West University of Timisoara and Institute e-Austria Timisoara, Romania</i>
12:00-12:30	Project Cloud-TM: Elastic, scalable and self-tuning data replication in the Cloud-TM platform <i>Paolo Romano, INESC-ID/IST, Portugal</i>
12:30-14:00	Lunch
14:00-15:30	<b>Session 3</b>
14:00-14:30	Project TLOUDS: Trustworthy Clouds <i>Marcelo Pasin, University of Lisbon, Portugal</i>
14:30-15:00	Project Contrail: A reliable and trustworthy cloud platform for critical applications <i>Roberto Cascella - INRIA, France</i>
15:00-15:30	Project VISION Cloud: Addressing Dependability Issues in Storage Clouds: The VISION Cloud approach <i>Dimosthenis Kyriazis, National Technical University of Athens, Greece</i>
15:30-16:00	Break
16:00-17:00	<b>Session 4</b>
16:00-16:30	Keynote: Software Execution Protection in the Cloud <i>Miguel Correia, INESC-ID/IST, Portugal</i>

<b>May 8</b>	<b>1st Workshop on P2P and Dependability (P2P-Dep)</b>
8:30-9:00	Registration
14:00-15:30	<b>Session 1</b>
14:00-15:00	Invited talk: Modeling and evaluating targeted attacks in large scale dynamic systems <i>Emmanuelle Anceaume (IRISA)</i>
15:00-15:30	Facing Peak Loads in a P2P Transaction System <i>Laure Millet, Maxime Lorrillere, Luciana Arantes, Stéphane Gançarski, Hubert Naacke and Julien Sopena</i>
15:30-16:00	Break
16:00-17:30	<b>Session 2</b>
16:00-16:30	Efficient BitTorrent Handshake Obfuscation <i>Thomas Zink and Marcel Waldvogel</i>
16:30-17:00	RCourse: a robustness benchmarking suite for publish/subscribe overlay simulations with PeerSim <i>Tobias Rene Mayer, David Coquil, Christian Schoernich and Harald Kosch</i>
17:00-17:30	Swift: The Missing Link Between Peer-to-Peer and Information-Centric Networks <i>Flutra Osmani, Victor Grishchenko, Raul Jimenez and Björn Knutsson</i>

<b>May 9</b>	<b>EDCC-12</b>
8:00-8:45	Registration
8:45-9:00	<b>Conference Opening</b>
9:00-10:30	<b>Session 1: Distributed Protocols</b> <i>Chair: Alysson Bessani</i>
9:00-9:30	CADA: Collaborative Auditing for Distributed Aggregation <i>José Valerio, Pascal Felber, Martin Rajman and Etienne Rivière</i>
9:30-10:00	Swarm Synthesis of Convergence for Symmetric Protocols <i>Ali Ebnenasir and Aly Farahat</i>
10:00-10:30	An Eventual alpha Partition-Participant Detector for MANETs <i>Léon Lim and Denis Conan</i>
10:30-11:00	Break
11:00-12:30	<b>Session 2: Software and Data Replication</b> <i>Chair: Tudor Dumitras</i>
11:00-11:30	From Byzantine Consensus to BFT State Machine Replication: A Latency-Optimal Transformation <i>João Sousa and Alysson Bessani</i>
11:30-12:00	Eliminating Single Points of Failure in Software-Based Redundancy <i>Peter Ulbrich, Martin Hoffmann, Rüdiger Kapitza, Daniel Lohmann, Reiner Schmid and Wolfgang Schröder-Preikschat</i>
12:00-12:30	A Mirrored Data Structures Approach to Diverse Partial Memory Replication <i>Ryan Lefever, Vikram Adve and William Sanders</i>
12:30-14:00	Lunch
14:00-15:30	<b>Session 3: Embedded Systems and Critical Infrastructures</b> <i>Chair: Lucian Vintan</i>
14:00-14:30	Testing the Input Timing Robustness of Real-time Control Software for Autonomous Systems <i>David Powell, Jean Arlat, Hoang Nam Chu, Félix Ingrand and Marc-Olivier Killijian</i>
14:30-15:00	Analysis of Electric Power Systems accounting for interdependencies in heterogeneous scenarios <i>Silvano Chiaradonna, Felicita Di Giandomenico and Nicola Nostro</i>
15:00-15:30	Log Analytics for Dependable Enterprise Telephony (industrial track paper) <i>Chuanwen Chen, Navjot Singh and Shalini Yajnik</i>
15:30-16:00	Break

16:00-17:30	<b>Session 4: Security in Large Scale Systems</b> <i>Chair: Marco Vieira</i>
16:00-16:30	Security of Electrostatic Field Persistent Routing: Attacks and Defense Mechanisms <i>Olivia Ghica, Cristina Nita-Rotaru, Goce Trajcevski and Peter Scheuermann</i>
16:30-17:00	ANKLE: Detecting Attacks in Large Scale Systems via Information Divergence <i>Emmanuelle Anceaume, Yann Busnel and Sébastien Gambs</i>
17:00-17:30	The Provenance of WINE (prototype/tool description paper) <i>Tudor Dumitras and Petros Efstathopoulos</i>
17:30-18:00	Break
18:00-19:00	<b>Student Forum and Fast Abstracts</b>



<b>May 10</b>	<b>EDCC-12</b>
8:30-9:00	Registration
9:00-10:00	<b>Keynote Speech</b> Embedded Systems Dependability (Fly-by-Wire) <i>Pascal Traverse - Airbus</i>
10:00-10:30	Break
10:30-12:00	<b>Session 5: Safety-Critical Systems</b> <i>Chair: Felicita Di Giandomenico</i>
10:30-11:00	Leveraging Multi-Core Computing Architectures in Avionics <i>Jan Nowotsch and Michael Paulitsch</i>
11:00-11:30	Timed Broadcast via Off-the-Shelf WLAN Distributed Coordination Function for Safety-Critical Systems <i>Boris Malinowsky, Hans-Peter Schwefel, Jesper Grønbaek, Andrea Ceccarelli, Andrea Bondavalli and Edgar Nett</i>
11:30-12:00	Formal Development of Critical Multi-Agent Systems: A Refinement Approach (practical experience report) <i>Inna Pereverzeva, Elena Troubitsyna and Linas Laibinis</i>
12:00-13:30	Lunch
13:30-15:00	<b>Session 6: Dependability and Performance Benchmarking</b> <i>Chair: João Garcia</i>
13:30-14:00	Experimental Analysis of Binary-Level Software Fault Injection in Complex Software <i>Domenico Cotroneo, Anna Lanzaro, Roberto Natella and Ricardo Barbosa</i>
14:00-14:30	Changeloads for Resilience Benchmarking of Self-Adaptive Systems: A Risk-Based Approach <i>Raquel Almeida and Marco Vieira</i>
14:30-15:00	Exploring Uncertainty of Delays as a Factor in End-to-End Cloud Response Time (practical experience report) <i>Anatoliy Gorbenko, Vyacheslav Kharchenko, Alexander Romanovsky and Olga Tarasyuk</i>
15:00-20:00	<b>Excursion</b>
20:00-22:00	<b>Banquet</b>

<b>May 11</b>	<b>EDCC-12</b>
8:30-9:00	Registration
9:00-10:30	<b>Session 7: Failure Detection and Diagnosis</b> <i>Chair: Pierre Sens</i>
9:00-9:30	A Time-Free Byzantine Failure Detector for Dynamic Networks <i>Fabiola Greve, Murilo De Lima, Luciana Arantes and Pierre Sens</i>
9:30-10:00	MultiPathPrivacy: Enhanced Privacy in Fault Replication <i>Pedro Louro, João Garcia and Paolo Romano</i>
10:00-10:30	Applying Data Mining for Detecting Anomalies in Satellites (practical experience report) <i>Denise Rotondi, Ana Maria Ambrosio and Marco Vieira</i>
10:30-11:00	Break
11:00-12:30	<b>Session 8: Hardware Fault-Tolerance</b> <i>Chair: Pedro Gil</i>
11:00-11:30	Memory Mapped SPM: Protecting Instruction Scratchpad Memory in Embedded Systems against Soft Errors <i>Hamed Farbeh, Mahdi Fazeli, Faramarz Khosravi and Seyed Ghassem Miremadi</i>
11:30-12:00	Designing Robust GALS Circuits with Triple Modular Redundancy <i>Jakob Lechner</i>
12:00-12:30	On the Development of a Real-Time Ethernet Switch for Ultra-Highly Dependable Applications (industrial track paper) <i>Dumitru-Mircea Chimereț, Costel Patrascu, Sabina Anghel, Yuval Katz and Wilfried Steiner</i>
12:30-12:40	<b>Closing Session</b>