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Computer Safety, Reliability, and Security

SAFECOMP 2012 Workshops: Sassur, ASCoMS, DESEC4LCCI, ERCIM/EWICS, IWDE
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Preface

Safety, reliability, and security are becoming vital in almost all technical domains. The reason is that computer pervasion is steadily increasing and more and more systems are becoming networked. This often leads to the term of cyber-physical systems, i.e., systems influencing our environment that are connected by modern computer networks. Examples are smart traffic guidance, intelligent power lines, or autonomous vehicles. Despite the commonality in safety challenges, each domain has very specific stakeholders, requirements, standards, etc.

To account for this, we decided to give various domain experts a common meeting place in the form of domain-specific workshops at SAFECOMP. The common theme is safety and security. Bringing these experts together at one place and collecting their articles in one volume fosters collaboration and the exchange of ideas.

For SAFECOMP 2012, we accepted five domain-specific, high-quality workshops. Each workshop had well-known chairs and an international program committee. Altogether 69 researchers from 15 countries reviewed the following 44 articles.

Architecting safe collaborative mobile systems was the aim of the ASCoMS workshop (chairs: António Casimiro and Jörg Kaiser). Building autonomous mobile systems is already challenging. However, for transition from academia to real-world scenarios, safety guarantees are mandatory and a prerequisite for acceptance.

Our daily life heavily depends upon the correct functioning of many complex large-scale infrastructures such as communication, power, or water supply. The DESEC4LCCI workshop (chairs: Christian Esposito, Marco Platania, and Francesco Brancati) focused on dependable and secure computing for such systems. Until recently, security for such systems could be reduced to physical security (i.e., protecting the infrastructure by security personal). As systems become widely connected, this is no longer sufficient and new approaches must be developed.

The emergence of cyber-physical systems is speeding up exponentially. The ERCIM/EWICS/DECOS workshop (chairs: Erwin Schoitsch and Amund Skavhaug) brought together stakeholders from many major European research projects and programs to exchange ideas on making such systems safer and more reliable.

Design and operation of most technical systems is no longer only an engineering challenge. It requires the interaction of mechanical, electrical, and software engineers for digitally engineering such a system. The 3rd International Workshop on Digital Engineering – IWDE (chairs: Gunter Saake and Veit Köppen) brought together researchers from these domains, which share the common vision of jointly digitally engineering safe and secure systems.

Safety assurance and certification are amongst the most expensive and time-consuming tasks in the development of safety-critical systems. The SASSUR workshop (chairs: Alejandra Ruiz, Tim Kelly, Mehrdad Sabetzadeh, and Didier Van den Abeele) focused exactly on bridging this gap. It covered new methods, approaches, and tools on tackling this problem.

Summarizing, I have to say that correspondence and organization of these five workshops for SAFECOMP took a lot of my time. But when looking at the program now, I would like to express my deepest thanks to all workshop chairs. You did a fantastic job. The program was very tempting and a great extension to SAFECOMP 2012. I would also like to thank in particular Michael Lipaczewski, who did a great job in organizing this volume and collecting all the articles, introductions, copyright forms, etc.

I hope you are all enjoying this volume and are maybe even benefitting from some new ideas and achievements presented here.

August 2012 Frank Ortmeier

Organization

Next Generation of System Assurance Approaches for Safety-Critical Systems Workshop (Sassur 2012)

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Workshop on Dependable and Secure Computing for Large-scale Complex Critical Infrastructures (DESEC4LCCI 2012)

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International Workshop on Digital Engineering (IWDE 2012)

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