

---

## Editorial

---

### Christian Damsgaard Jensen\* and Nicola Dragoni

Department of Informatics and Mathematical Modelling,  
Technical University of Denmark,  
Richard Petersens Plads, DK-2800 Lyngby, Denmark  
E-mail: cdj@imm.dtu.dk  
E-mail: ndra@imm.dtu.dk  
\*Corresponding author

**Biographical notes:** Christian Damsgaard Jensen is an Associate Professor at the Technical University of Denmark. He received his MSc in Computer Science from the University of Copenhagen and PhD in Computer Science from Université Joseph Fourier in Grenoble. His research interests include computer and network security, especially issues involving secure collaboration in potentially large open computing environments, where there are no trusted third parties to mediate interactions among mutually suspicious principals.

Nicola Dragoni received his MSc and PhD in Computer Science, respectively in 2002 and 2006, both at University of Bologna, Italy. He visited the Knowledge Media Institute at the Open University (UK) in 2004 and the MIT Centre for Collective Intelligence (USA) in 2006. In 2007 and 2008, he was a Post-Doctoral Research Fellow at University of Trento, working on security for mobile systems. Between 2005 and 2008, he also worked as freelance IT consultant. In 2009, he joined Technical University of Denmark (DTU) as an Assistant Professor in Security and Distributed Systems and was promoted to an Associate Professor in 2011.

---

This is the first of two special issues containing invited extensions of papers presented at the 4th and 5th Nordic Workshops on Dependability and Security (NODES '10 and NODES '11), both held at the Technical University of Denmark in June 2010 and 2011. The workshops were organised by the Nordic Network on Dependable Systems (NODES), which is a cooperation initiative supported by NordForsk during 2007–2009 with the explicit aim of promoting dependability in the Nordic universities curricula and postgraduate education. The papers demonstrate the broad scope of the field of dependability and the diversity of dependability research rooted in the Nordic countries. Bringing together researchers working on the many different aspects of dependability provides a unique opportunity to discuss different dependability solutions that have emerged in the different research communities and develop integrated approaches to dependability in computer systems. This volume contains papers that primarily focus on the security aspects of dependability.

As society gets increasingly dependent on information and communication technologies, from entertainment, education and commerce to electronic elections and control of utilities and critical infrastructures, such as communication (mobile- and fixed line telephone and network connectivity), electricity (smart grids) and transportation (road traffic, rail and air traffic control), it has become increasingly important to ensure

that these ICT systems are designed, implemented and operated in ways that ensure continuous correct and robust behaviour. The complexity of current ICT systems and the wide variety in their applications increases the challenge of ensuring dependability. Cost pressure adds stringent constraints on the development and deployment of software controlling such systems. This often leads to poor software quality or even to the overall failure of delivering the adequate software. Moreover, the use of various emerging technologies implies solving new tasks such as the provision of reliable services over the unreliable infrastructures, guaranteeing security in presence of malicious attacks, ensuring the adaptability of constantly evolving systems, etc. This gives rise to the study of *dependability* as a system property that encompasses vital characteristics such as *safety* – the non-occurrence of catastrophic consequences for the environment the system works in, *security* – the non-occurrence of unauthorised disclosure of information, *integrity* – the non-occurrence of inadequate information alteration, *availability* – the readiness for correct service of the system, and *reliability* – the property of the system to continuously provide service. All of these characteristics must to some degree be present in a system that people depend on in their everyday life.