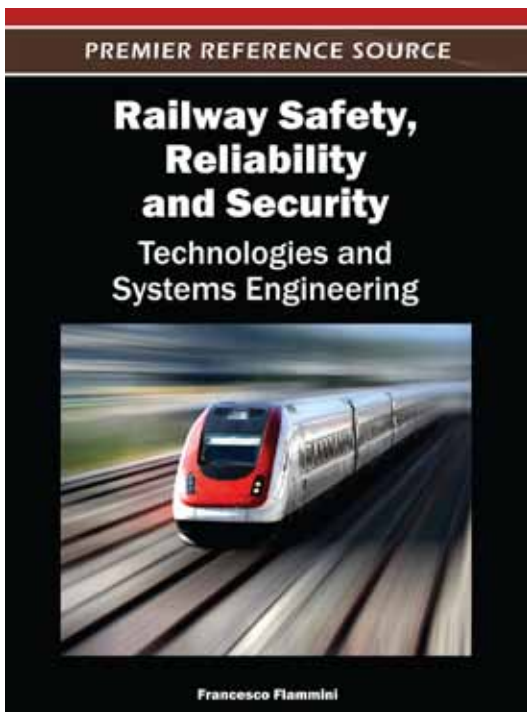


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Railway Safety, Reliability, and Security: Technologies and Systems Engineering



Francesco Flammini
(IEEE Computer Society, Italy)

Human errors, as well as deliberate sabotage, pose a considerable danger to passengers riding on the modern railways and have created disastrous consequences. To protect civilians against both intentional and unintentional threats, rail transportation has become increasingly automated.

Railway Safety, Reliability, and Security: Technologies and Systems Engineering provides engineering students and professionals with a collection of state-of-the-art methodological and technological notions to support the development and certification of 'real-time safety-critical' railway control systems, as well as the protection of rail transportation infrastructures.

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- High-Assurance Systems Engineering
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ISBN: 9781466616431; © 2012; 487 pp.

Print: US \$195.00 | Perpetual: US \$295.00 | Print + Perpetual: US \$390.00

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Francesco Flammini got with honours his laurea (July 2003) and doctorate (December 2006) degrees in Computer Engineering from the University Federico II of Naples. From October 2003 to January 2007, he has worked in Ansaldo STS (Finmeccanica) as a Software/RAMS Engineer in the Verification & Validation unit. He has been involved in several ERTMS/ETCS (European Railway Traffic Management System / European Train Control System) related projects, both for the on-board and the trackside systems. In particular, he has specialized in functional testing of critical control systems. Since February 2007, after moving to the Innovation & Competitiveness unit, he has worked on critical infrastructure protection, transportation security and several interdisciplinary research projects. In particular, he has worked on risk assessment and design of security management systems. He has won company innovation awards in 2005 (Automatic Train Control System based on ERTMS/ETCS L3), 2007 (Subway Tunnel Protection System) and 2009 (PIEZORAIL Project). His main research interests are about dependability and security of critical systems and infrastructures, including multi-paradigm modeling approaches. He is author of more than 35 scientific papers published in international journals, book chapters and conference proceedings. He has been awarded a grant as the "Best Ph.D. student paper" at the Dependability of Computer System Conference in 2006. He has classified 3rd at the business-plan competition Start Cup Federico II 2008 with the project "N-Enterprise". He has served as a chairman, a member of the International Program Committee and a reviewer for several international conferences and IEEE journals. He is Vice-Chair of the IEEE Computer Society Italy and participates to several Technical Committees, including Software Engineering and Fault Tolerant Computing. He is also member of the European Workshop on Industrial Computer Systems Reliability, Safety and Security (EWICS TC7), FME (Formal Methods Europe), ERCIM Working Group on Formal Methods for Industrial Critical Systems (FMICS), ESRA TC on Operational Safety and Security of Interconnected Critical Infrastructures, and IEEE SMC TC on Homeland Security. He is Editor in Chief of the "International Journal of Critical Computer-Based Systems" (IJCCBS, Inderscience Publishers).



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