MB4CP 2015 Workshop Keynote I

Dependability Modeling and Analysis Methods Integrated in Model-Driven Industrial Architectural Frameworks

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Abstract
In the last ten years, model-driven engineering approaches have been extensively used for the analysis of extra-functional properties of complex systems, like safety, dependability, security, predictability, and quality of service. To this end, engineering languages such as UML and AADL have been extended with additional features to model the required non-functional attributes, and transformations have been used to automatically generate the analysis models to be solved by appropriate analysis tools. In this talk, we explore this research direction and describe our activities, presenting dependability modeling and analysis methods integrated in industrial-driven architectural frameworks for the specification, analysis, and verification of extra-functional properties of cyber-physical systems, developed within the past ARTEMIS-JU CHESS project and currently within the ARTEMIS-JU CONCERTO project. We discuss the lessons learned and experience gained from successful application of cyber-physical systems industry standards in software systems.

Bio
Andrea Bondavalli is a Professor of Computer Science at the University of Firenze. Previously he has been a researcher and a senior researcher of the Italian National Research Council, working at the CNUCE Institute in Pisa. His research activity is focused on Dependability, Resilience and more recently on Security. In particular he has been working on safety, security, fault tolerance, evaluation of attributes such as reliability, availability and performability. His scientific activities have originated more than 170 papers appeared in international Journals and Conferences. Andrea Bondavalli supports as an expert the European Commission in the selection and evaluation of project proposals and regularly consultes companies in the application field. He also started Resiltech SRL. a spinoff of the University of Firenze. Andrea Bondavalli led various national and European projects such as the Italian MIUR PRIN “DOTS-LCCI” and the European projects ESPRIT BRA 3092 PDCS, 6362 PDCS-2, ESPRIT 20716 GUARDS, ESPRIT 27439 HIDE, IST-2001-38229 "CAUTION++", IST-FP6-STREP-26979 HIDENETS, IST-2004-27513 CRUTIAL, TST5-CT-2006-031413 SAFEDMI e FP7 – 216295 CA AMBER, FP7 SST-2008-234088 ALARP. Now is leading the FP7-ICT-2013-10-610535 “AMADEOS” (coordinator), the FP7-
PEOPLE-2012-IAPP-324334 “CECRIS” (Coordinator), the MIUR PRIN 2010-11 " TENACE:“, the PIRSES-GA-2013-612569 “DEVASSES”, the ARTEMIS-2012-1-333053 “CONCERTO” and the POR CReO 2007-2013, linea di intervento 1.5.a - 1.6 “SECURE” Andrea Bondavalli participates to (and has been chairing) the program committee in several International Conferences such as IEEE FTCS, IEEE SRDS, EDCC, IEEE HASE, IEEE ISORC, IEEE ISADS, IEEE DSN, SAFECOMP. He is the chair of the Steering Committees of IEEE SRDS and a member of the editorial board of the International Journal of Critical Computer-Based Systems. Andrea Bondavalli is a member of the IEEE, the IFIP W.G. 10.4 Working Group on "Dependable Computing and Fault-Tolerance".