

11:45 Test de logiciels et de systèmes de communication
Testing of software and of communication systems

Richard Castanet, LaBRI, Bordeaux



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Testing is a very important matter in the life-cycle of software. It represents a validation technique to increase the level of confidence in the software. Several standards related to testing have been proposed for the protocols and industrial systems. We distinguish different types of tests: conformity, interoperability, robustness, performance, non regression. In a number of cases, the time devoted to testing may be greater than 50% of the life cycle. It is therefore necessary to develop methods and tools to reduce this time. The use of a formal specification is very effective and interesting. It allows for use several types of validation tools to be used: formal verification, simulation, proof and often the automatic generation of executable code and the automatic generation of test sequences. In the talk, we will focus on the case of communication protocols and reactive embedded systems using, as formal models, transition systems and their extensions (with variables, predicates, clocks, time...). Furthermore, testing architectures are required in order to ensure a degree of controllability and observability.

The problems of the testing and the generation of test sequences are related to the test coverage, reducing the number of tests (and therefore the time spent on testing), reducing the size of tests and architectures.

Richard Castanet is Professor at the University of Bordeaux, more precisely in the graduate school of engineering ENSEIRB and leads the research team LSR (Languages, Systems and Networks) at LaBRI (Research Laboratory in Computer Science of Bordeaux). He is also Director of the graduate school of engineering ENSEIRB and has led the LaBRI from 1999 to 2003. His main research interests are formal specification, testing (conformance, interoperability, robustness) of reactive or embedded systems or communication protocols, and automatic generation of tests. He is author or co-author of more than 100 papers in scientific journals or in international conferences. He has led industries-research projects between LaBRI and several major companies (BULL, France Telecom, IBM, Electricité de France, Airbus, RATP). He participates or has participated to several national projects (RNRTL, RNRT, ANR, specific actions CNRS) and European projects in the domain of testing of software or of communication protocols.