LAFISI

LAboratoire Franco Italien de recherche sur les Systèmes Intégrés matériel-logiciel

LAboratorio Franco-Italiano di ricerca sui Sistemi Integrati hardware-software
Scientific Statement

Integrated electronic systems are at the heart of numerous products used nowadays in our society of information and communication technologies (ICT). However, technological advancements towards the “ultimate CMOS” impose similar advancements of test techniques to ensure a high quality level of manufactured circuits. Moreover, during lifetime, it is also crucial to ensure that a circuit will be able to detect and tolerate errors due to permanent defects or transient faults. This requires various (software, hardware), multi-level (system, architectural, circuit) and low-cost dedicated techniques.

Global Objectives

The main objective of the Lia “LAFISI” is to promote the French-Italian collaboration in the field of hardware-software integrated systems, by developing novel approaches for built-in self-test and design-for-test, test pattern generation and fault simulation, performance verification, diagnosis, fault tolerance and improvement of system reliability. The wide expertise of the two partners in the fields of automatics, informatics and microelectronics, once combined, will allow to conduct researches on hardware-software integrated systems targeting classical applications such as processors for computational units or systems-on-chip for mobile communications, or more critical applications such as embedded systems for space, medical, avionic or automotive domains.

LAFISI key points

- Synergize research efforts on all aspects of test and fault tolerance of hardware-software integrated systems, from the circuit to system level.
- Promote joint education of students to research careers and set up advanced course programs, summer schools, or research internships.
- Facilitate diffusion of a scientific culture of high quality in the field of hardware-software integrated systems.
- Set up the necessary means for the valorization and technological transfer of research results obtained in the framework of the Lia.

LIRMM

The Montpellier Laboratory of Informatics, Robotics, and Microelectronics, is a world-class university laboratory, known internationally for its expertise in the testing field. LIRMM not only benefits from its affiliation with the CNRS (National Center for Scientific Research) and the University of Montpellier 2, but with its 400 people, it represents a powerful force in the world of innovation and research. LAFISI’s innovative solutions will benefit directly from LIRMM’s wide range of scientific expertise.

Politecnico di Torino

Politecnico di Torino is a leading research institution at the Italian and international level. The Dept. of Control and Computer Engineering (DAUIN) has a long and well-established expertise in the area of embedded system design, with special emphasis on test and fault tolerance. More than 70 researchers work in DAUIN, enjoying the laboratories and facilities located in the new buildings. DAUIN will also contribute to LAFISI with its large network of contacts with industries and research centers.
INTERNATIONAL COMPETITION

At the international level, the creation of the LIA « LAFISI » represents a novel initiative in the fields of test and fault tolerance of hardware-software integrated systems, from the standpoint of manpower in this laboratory, complementarity of skills, and diversity and range of developed scientific topics.

Contacts

Contacts at LIRMM:
Patrick GIRARD, girard@lirmm.fr, Tel. +33 467 418 629
Alberto BOSIO, bosio@lirmm.fr, Tel. +33 467 418 576

Contacts at Politecnico di Torino:
Matteo SONZA REORDA, matteo.sonzareorda@polito.it, Tel. +39 011 090 7055
Paolo BERNARDI, paolo.bernardi@polito.it, Tel. +39 011 090 7183

http://www.lirmm.fr/LIA_LAFISI/