Dependability Challenges and Education Perspectives

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Our society is increasingly dependent on computer systems that play a vital role in practically all aspects of our economy and daily lives. The question about the limits of computer dependability and about the challenges raised by those limits is more acute than ever. These challenges are not merely technological, as the complex facets of the dependability equation also touch methodological aspects, attitudes, and educational issues more and more.

In the past, the terms high dependability, fault tolerance, and safety critical had connotations to high demanding and specific applications such as flight control and nuclear power plants. Today, the networked information society has created an incredible complex pattern of interconnected computer systems, from small embedded systems to very large transactional servers, that interact with users in a huge variety of ways and scenarios. This complex structure of computes, networks, and people comprises the most demanding challenges in computer dependability.

In spite of the significant advances that have been achieved in computer dependability in the past, the situation today requires a resetting of the research effort on computer dependability, in tight connection with other disciplines such as human behavior or sociological sciences. In addition to this interdisciplinary research effort, the educational issues related to computer dependability deserve particular attention, as there is a clear gap between what is known and what is being taught, not only at the system design course syllabuses but also in a more sense of creating a dependability-aware culture.

In the panel we bring to discussion the two complementary aspects mentioned above:

- new challenging problems on computer dependability, as applied to the hardware, software, or human elements, either focusing on specific application domains or addressing future scenarios and visions for the information society and for the computer industry, and
- new ideas on how to promote a dependability-aware culture in all the players/institutions (education, research, industry, research funding, and users), attract new researchers to the field, and highlight the fundamental role of the research on new dependability technologies in the information and communication systems and infrastructures.