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IFIP WG 13.5 Workshop on Resilience, Reliability, Safety and Human Error in System Development

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Abstract. This workshop focusses on the issues of bringing together several properties to interactive systems. While research in the field of HCI is mainly targeting at Usability and user experience (UX) this workshop focusses on Resilience, Reliability and Safety. It is organized by the IFIP Working Group 13.5 on Resilience, Reliability, Safety and Human Error in System Development. The goal of the workshop is to bring together researchers and practitioners from these various disciplines or their related application domains (such as nuclear, space, aeronautics, healthcare…) to discuss real-life case studies featuring success and/or failure stories of development processes that target resilient interactive systems and take into reliability, safety and human errors for interactive systems. The objective of the workshop is to produce a structured roadmap and a research agenda for the design, construction and assessment of resilient interactive systems.

1 Overview and goals

In the area of Human-Computer Interaction (HCI) there is large involvement in the design, development and evaluation of interactive systems targeting application domains like entertainment and leisure or standard office work environments. In such contexts, the focus is mainly on usability and user experience properties, leaving other aspects of software such as reliability to other disciplines such as dependable computing or computer science. For this reason, interactive systems that are safety-critical and belong to domains such as Healthcare, Aeronautics, Air Traffic Management or Satellite Control are left with designed interaction techniques that are so poorly engineered that they remain inapplicable. While entertainment and "standard" work interactive systems have a strong focus on usability and user experience, in the area of safety-critical systems factors like safety, reliability, fault-tolerance or dependability are as important as usability and user experience, while usability problems are usually compensated by training.

These two distinct views about interactive systems lead to two different communities using different approaches, development processes and methods. Contrary to the current perception that this distinction is important and should remain intact, we argue that methods, approaches, processes and solutions in one area can be fruitfully deployed in the other area. One precise example of such possible cross-fertilization is the design and development of user interfaces including autonomous behavior in safety-critical systems [1]. Solutions from video games can be used to solve some of the major problems when interacting with this type of autonomous behavior in a user interface of safety critical systems.

The main goal of this workshop is to identify areas of meaningful integration between mass market products (consumer focus) and safety-critical systems, to investigate new solutions and to strengthen a community interested in this area.

2 Target audience and expected outcomes

We expect participants from:

- Mass market products design and development, user interface design and engineering but also interested in safety-critical systems design, specification and validation.
- Safety-critical system design and development but also interested in new interaction techniques, designing for user experience and usability.
- Academics and practitioners carrying out research around the notion of resilience and human error. Their area of expertise can be related to human-computer interaction, human factors or interactive systems development. Their topic of interest should involve usability, reliability, safety, resilience and/or user experience.
- Students interested in mass market products (including video games) and/or safety-critical systems and willing to learn more about the intersection of these domains.

The upper limit in number of participants is 30, to allow for active participation and a fruitful discussion of topics.

3 Participant Solicitation and Selection

Workshop participation will be based on an (up to) six page position paper (LNCS Format) describing interests and previous work in the topics of the workshop. *Selection* will be based on the *quality* of the abstract, answers to the list of issues, the extent (and *diversity*) of participants' backgrounds. We envision two main types of contributions: problems contributions bringing case studies or theoretical problems, and solutions contributions bringing solutions already proven efficient in one of the domains considered.

4 References

1. Palanque, P., Bernhaupt, R., Montesano, F. and Martinie C. Exploiting Gaming Research and Practice in the Design of User Interfaces of (partly)-Autonomous Safety-Critical Systems, Proc. of ATACCS 2011, ACM Press.