2nd Workshop on Open Resilient Human-aware Cyber-Physical Systems (WORCS-2013)

Call for Contributions

Monday June 24, 2013 — Budapest, Hungary

in conjunction with the 43rd Annual IEEE/IFIP International Conference on Dependable Systems and Networks — DSN-2013

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Important Dates

- **Papers due: March 1, 2013**
- **Acceptance notification: April 12, 2013**
- **Final version due: April 30, 2013**

Further Information
- DSN-2012: **www.dsn.org**
- Workshop: **conf.laas.fr/WORCS13**
- Contact: **dsn2013-worcs[at]laas.fr**

Previous Edition
- WORCS-2012: **conf.laas.fr/WORCS12**

Motivation and Objectives

Cyber-physical systems (CPS) are tight integrations of computation, networking, and physical objects. Recent advances in pervasive and ubiquitous information processing, driven by major breakthroughs in cyber-physical technology are paving the way towards a more hospitable and sustainable future via a more efficient management of our environment: homes, work places, open areas, etc. Examples of relevant applications include: future automotive and transportation systems featuring intensive sensing and open data communication devices, robot-assisted communication and cooperation in search and rescue missions, enhanced situation awareness in public urban spaces, assistance and monitoring in everyday life for elderly or handicapped people, smart resilient and secure heterogeneous energy grids, etc.

It is envisioned that the requirements of the CPS of the future will far exceed those of today's systems in terms of functionality, usability, adaptability, autonomy, timeliness and resilience to accidental and malicious threats as well as to dynamic changes of user behaviors and of the environment. For this to become a reality, several scientific challenges have to be addressed, among which we can list the followings:

- **The need for multidisciplinary approaches integrating technological concerns** including physical system dynamics and information and communication technologies related aspects (covering topics such as sensor technologies, communication and networking, optimization, control and decision making algorithms, resilience and quality of service enforcement and assessment), **and human concerns** related to human-physical system interaction, usability, user experience, responsibility, privacy, security and user and social acceptability.
- **The need for human-aware self-adapting approaches** to adapt autonomously, at least reactively and as much as possible proactively, the provided behavior to dynamic changes in the system behavior, environment or threats.
- **The need for an integration of design & assessment activities** to build the optimal architectures and configurations able to provide the best tradeoffs between functional requirements and non-functional requirements (reliability, availability, security, timeliness, performance, etc.)

The aim of this workshop is to address these challenges and to report on recent advances related to the dependability and security of human-aware CPS.

Scope and Topics

This workshop is aimed at exploring the challenges and innovative solutions in any area related to the resilience of human-aware CPS. **The main issue is to build systems with human-aware and optimized resilience capabilities to prevent, detect and/or recover from the occurrence of accidental and malicious threats, and also to diagnose the root causes of observed untoward consequences. Contributions addressing these topics at different levels of the CPS (sensors, communication network, operating system and middleware levels, and system and human levels) are solicited**. Topics of interest include (but are not limited to):

- Advanced HW and SW architectures, middleware, algorithms, and communication technologies to cope with malicious attacks, accidental faults, design errors and unexpected or inappropriate human or environment interactions.
- Rigorous model-based, simulation and experimental techniques to support the engineering, verification and assessment of the resilience and real-time properties resulting from integration of cyber and physical resources and human and environmental interactions.
- Resilient human cyber-physical system collaboration, including social and user privacy concerns.
- New approaches to build assurance cases for resilient CPS integrating human and environment aspects.
- Case studies, tools, test beds and projects adressing the challenges raised by resilient CPS.

Contributions addressing conceptual foundations or reporting on practical experiences and real systems are sought. All application domains using CPS could be concerned: Healthcare & Homecare, digital public spaces, smart power grids, transportation systems (automotive, aerospace, …), etc. For example, by the year 2016 the automotive industry plans to introduce *Autonomous Emergency Braking for the wide-scale protection of Pedestrians*. **The topic of interaction between *human-initiated* and *autonomous* actions in a CPS** is of utmost relevance here and **will form one focus of the workshop**.

Participation, Submission and Selection Process

The Workshop is open to researchers, system developers and users, from both industry and academia, who are involved with or have an interest in dependability and security of human-aware CPS. The Workshop program will feature both **invited** and **submitted** contributions. Two types of submissions are solicited: (i) full papers describing conceptual methods, applications, case studies or tools; and (ii) short papers on challenges and research directions for the future or describing work in progress or ongoing projects.

Submissions should not have substantial overlap with previously published papers or simultaneous submissions to a journal or conference with proceedings. All papers should conform to the **IEEE two-column format.** Full papers should be no more than 12 pages; short papers should be no more than 6 pages.

Submissions must be made electronically, as a single **Portable Document Format (PDF)** file, via the **Submission and Evaluation** link on the Workshop Webpage at: **conf.laas.fr/WORCS13**. We recommend that you embed fonts whenever possible to improve portability.

Submissions will be fully refereed by the Program Committee. Authors of accepted papers must guarantee that their paper will be presented at the Workshop. Accepted papers will be included in the **Supplement to the DSN Proceedings**, as well as in the **DSN-W volume** on **IEEE Xplore**.