

# The 42<sup>nd</sup> Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2012) June 25 - 28, 2012 — Boston, Massachusetts, USA

## Workshop on Open Resilient Human-aware Cyber-Physical Systems (WORCS-2012)

Organizers: Mohamed Kaâniche, LAAS-CNRS, Univ. Toulouse, France

Michael Harrison, Queen Mary Univ. London, UK Hermann Kopetz, Technical Univ. Vienna, Austria Daniel Siewiorek, Carnegie Mellon Univ., USA

### **Program Committee**

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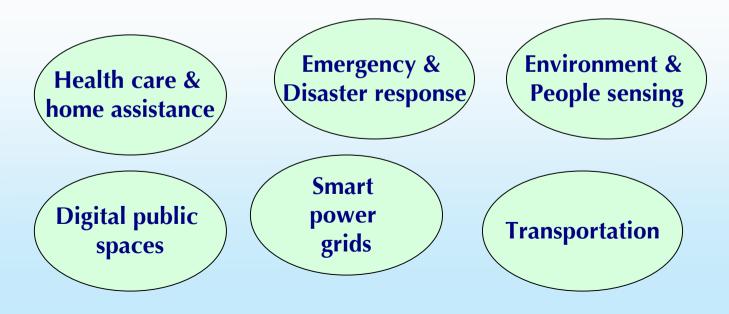
José Rufino U. Lisboa, Portugal

William H. Sanders UIUC, USA

Feng Xia Dalian U. of Technology, China

### **Context & Motivations**

- Cyber-Physical Systems
  - Tight integration of computation, communication and control into physical systems
- Increasing development of smart, networked, context-aware, adaptive and highly reactive, mission-critical CPS, with massive deployment of sensors, actuators in highly dynamic physical environments involving social interactions



### **Challenges and Workshop Objectives**

- Requirements of CPS of the future will far exceed those of today's systems in terms of functionality, usability, adaptability, autonomy, timeliness and resilience
- Provide a forum at DSN to discuss:
  - Multidisciplinary approaches integrating technological concerns including physical system dynamics and ICT aspects, but also social and human related aspects
  - Resilient Human-aware self-adapting approaches to autonomously adapt to dynamic changes in system behavior, environment or threats
  - Integrated and scalable design and assessment techniques for optimal trade-offs during system engineering phases and at runtime

### **Program at a Glance**

#### 08:30-10:15 — SESSION 1: Resilient Medical and Health Care CPS

- Invited Talk Challenges in Medical Cyber-Physical Systems
   Insup Lee, U. Pennsylvania, USA
- Invited Talk Virtual Coaches in Health Care
   Daniel Siewiorek, CMU, USA

10:15 - 10:45 — Break

#### 10:45-12:00 — SESSION 2: User-Centric Approaches

- Invited Talk A Model and Simulation for User-Centric Automation Devices and Systems
  Jane Liu, Institute of Information Science, Academica Sinica, Taiwan
- Smart Checklist for Human intensive Medical Systems
   Goerge Avrunin (1), Lori Clarke(1), Leon Osterweil(1), Julian Goldman (2); Tracy Rauch (3)
   (1) U. Massachusetts Amherst; (2) Massachusetts General Hospital; (3) DocBox, Inc.; USA

12:00 - 13:30 — Lunch

#### 13:30-15:00 — SESSION 3: Design, Monitoring, and Security

- Toward Resiliency in Embedded Monitoring Systems
   Homa Alemzadeh (1), Catello Di Martino (1), Zhanpeng Jin (2), Zbigniew Karlbarczyk (1),
   Ravishankar Iyer (1); (1) U. Illinois at Urbana Champaign; (2) State U. of New York; USA
- A Rigorous Approach to the Design of Cyber-Physical Systems through Co-Simulation John Fitzgerald, Ken Pierce, Carl Gamble, U. of Newcastle, UK
- Physical Attack Protection with Human-secure Virtualization in Data Centers Jakub Szefer, Pramod Jamkhedkar, Yu-Yuan Chen, Ruby Lee, Princeton U., USA

### **Program at a Glance**

#### 15:30-16:00 — SESSION 3: Design, Monitoring, and Security (cont.)

 MILS-Related information Flow Control in the Avionic domain: A View on security-Enhancing Software Architectures

K. Muller (1), M. Paulitsch (1), S. Tverdyshev (2), and H. Basum (2); (1) EADS Innovation Works, Munich; (2) SYSGO AG, Kelin-Winternheim; Germany

#### 16:00-17:00 — Panel

 Challenges and Research Directions in Resilient Cyber-Physical Systems Panelists:

Keith Marzullo, National Science Foundation, USA Takashi Nanya, Canon Inc., Tokyo, Japan Insup Lee, University of Pennsylvania, USA Jane Liu, Institute of Information Science, Academica Sinica, Taiwan Daniel Siewiorek, Carnegie Mellon University, USA

#### 17:00 — Adjourn