WORKSHOP
Human Cyber Physical System Interaction: Control for Human Welfare
http://h-cps-i.sciencesconf.org
September 22-23, 2014

Paris, Institut Henri Poincaré, Amphi Hermite: http://www.ihp.fr/fr

IPC chairs: Mariana Netto, IFSTTAR & **Sarah Spurgeon**, University of Kent, UK
IPC vice-chair: Tariq Samad, Honeywell, US
NOC chair: Françoise Lamnabhi-Lagarrigue, L2S-CNRS, EECI, France

IPC Members:
Anuradha Annaswamy, MIT, US
Corinne Brusque, IFSTTAR, France
Gilney Damm, University of Evry, France
Jack DiGiovanna, EPFL, Switzerland
Ronald Hess, University of California, Davis, US
Françoise Lamnabhi-Lagarrigue, L2S-CNRS, EECI, France
Naomi Leonard, Princeton University, US
Franck Mars, IRCCyN, CNRS & Ecole Centrale de Nantes, France

Berenice Mettler, University of Minnesota, US
Patrick Millot, University of Valenciennes, France
S. Narayanan, Wright State University, US
Joerg Raisch, Tech. Univ. Berlin, Germany
Stephen Robinson, University of California, Davis, US
Tetsuo Sawaragi, Kyoto University, Japan
Anand Tharanathan, Accenture, US
Wan Chul Yoon, KAIST, Korea

NOC Members:
Mariana Netto, IFSTTAR, France
Janan Zaytoon, SEE, GDR MACS, France

This 2-day workshop is dedicated to stimulating cross-fertilization in the field of technology design for the welfare of human beings, with particular reference to control science and engineering. By opening our view to a large space of applications and domains dealt with by different approaches, but where similarities can surely be identified, the main goals of this workshop are to highlight new challenges in Human-CPS-systems design, discuss their social impact and identify research opportunities to address and resolve the challenges.

Speaker:

Monday 22 September 2014

9:00 – 9h45	**Welcome and on-site registration**
9:45 – 10:00	**Introduction** Janan Zaytoon, Mariana Netto & Françoise Lamnabhi-Lagarrigue
	Session chair: Sarah Spurgeon
10:00 – 10:50	**Tutorial: Cooperative cyber-physical systems with human in the loop,** Ruzena Bajcsy, *University of California, Berkeley, and Center for Information Technology Research in the Interest of Science, USA*
10:50 – 11:10	*break*
	Session chair: Tariq Samad
11:10 – 11:35	**Control of functional electrical stimulation for upper-limb stroke rehabilitation,** Timothy A. Exell, *Cardiff Metropolitan University, UK,* Chris T. Freeman, Katie L. Meadmore, Ann-Marie Hughes, Emma Hallewell, Eric Rogers, and Jane H. Burridge, *University of Southampton, UK*
11:35 – 12:00	**Measuring, Inducing, and Controlling Human Motions in a Rehabilitation Context,** Thomas Seel, Thomas Schauer, Joerg Raisch, *TU Berlin, Germany*
12:00 – 12:25	**Brain-spinal interfaces to augment locomotor ability after injury,** Jack DiGiovanna, *Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*
12:25 - 14:00	*lunch*
	Session chair: Franck Mars
14:00 – 14:25	**An autonomous wheel-based stair-climbing principle and its potential for wheel chairs and assistive robots**, Bruno Strah and Stephan Rinderknecht, *Technische Universität Darmstadt, Germany*
14:25 – 14:50	**Firing-rate models: A low-hanging fruit for the analysis of basal ganglia oscillations,** William Pasillas-Lépine**,** *L2S CNRS, Supélec, Université Paris Sud, France*
14:50 – 15:15	**HemiGaitEm : an embedded system for gait parameters acquisition for hemiplegic persons,** Tong Li, Gilbert Pradel, Nicolas Roche, *ENS Cachan-Garches Hospital, France*
15:15 – 15:40	**Biomechanical Human Models : Towards the virtual conception and assessment of the mobility,** Philippe Vezin, *Université de Lyon, Université Claude Bernard Lyon1, IFSTTAR, Bron, France*

15:40 – 16:00	*break*
	Session chair: Ronald Hess
16:00 – 16:25	**Enhancing situation awareness in process control,** Anand Tharanathan, *Accenture, Chicago, USA*
16:25 – 16:50	**Hierarchical control of driving and human-machine cooperation**, Franck Mars, *IRCCyN, CNRS & Ecole Centrale de Nantes, France*
16:50 – 17:15	**Automated vehicles: where are they heading to?,** Ebru Dogan, *Institut VeDeCoM, Versailles, France*
17:15 – 18:00	**Control in physical human-machine interaction**, Sandra Hirche, *TU München, Germany*
	Open discussion, Anand Tharanathan (Chair)
19:30	Workshop Banquet

Tuesday 23 September 2014

	Session chair: Corinne Brusque
9:15 – 10:00	**Tutorial: Human-centered haptic shared control: one design philosophy across different applications,** David Abbink, *TU Delft, The Netherlands*
10:00 – 10:25	**Advanced driving assistance systems for elder/disabled drivers - part I, identification of the drivers needs** , Claude Marin-Lamellet, *IFSTTAR, Lyon, France*
10:25 – 10:50	**Advanced driving assistance systems for elder/disabled drivers - part II, human-centered system design** Thierry Bellet, *IFSTTAR, Lyon, France*
10:50 – 11:10	*break*
	Session chair: Stephen Robinson
11:10 – 11:35	**Risk Analysis from the concept of dissonance to identify the gaps from design and usage of automated systems,** Fréderic Vanderhaegen, *LAMIH, Université de Valenciennes, France*
11:35 – 12:00	**Methodological elements in the analysis of faults in the Human-Machine coupling with applications in driving assistance systems**, Xavier Chalandon *Renault, Expert Leader HMI, France.*
12:00 – 12:25	**Modeling Human-Machine Interaction in the Cockpit,** Ronald A. Hess, *University of California, Davis, US*
12:25 – 14:00	*Lunch*
	Session chair: Berenice Metler
14:00 – 14:25	**What Does the Surgeon Really Need?** Thomas Lendvay, *Seattle Robotic Surgery Program and University of Washington, US.*
14:25 – 14:50	**Human skills and the evolving human-machine system,** Berenice Mettler, *Minneapolis, University of Minnesota, US*
14:50 – 15:15	**Human-Machine Interaction in Space,** Stephen Robinson, *University of California, Davis, US*
15:15 – 15:40	**A Software for Robot Teleoperation Applications based on ROS,** Alex F. Neves, *Fernando Lizarralde, Ramon R. Costa, COPPE/Federal University of Rio de Janeiro, Brazil*
15:40 – 16:00	*break*
	Session chair: Anuradha Annaswamy
16:00 – 16:25	**Joint system as a guiding approach for driver-automation system design**, Johann Kelsch, *DLR, Allemagne*
16:25 – 16:50	**Thinking of users in the smarter energy systems** Ritsuko Ozaki, *Imperial College, London, UK*
16:50 – 17:15	**Customizable user integrated Energy Management in Smart Buildings,** Florian Allerding, *Karlsruhe Institute of Technology (KIT), Germany*
17:15 – 18:00	**Panel Discussion : Prospectives & Social impact of the Human-CPS Nexus,** Anuradha Annaswamy and Tariq Samad (Chairs)