Newsletter of the IFAC Technical Committee on Human-Machine-Systems

Issue 2013_1, January 2013 (Newsletter of IFAC TC 4.5 available on: http://tc.ifac-control.org/4/5/newsletter)

Happy new year hoping to see all the human-machine systems communities at the 12th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems, Las Vegas, USA, August 11-15 2013!

This first 2013 newsletter contains:

1. A new welcoming page of our website
2. The remind of the call for papers and sessions for our 12th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems, August 11-15, Las Vegas, USA
3. The presentation of the GRAISyHM group
4. The presentation of an international summer school on Human-Machine Systems in Valenciennes, July 1-5, 2013, entitled "Risk Management in Life Critical Systems"
5. Journals on Human-Machine Systems
6. A list of future events related to Human-Machine Systems

(To publish your TC4.5 related information to the next newsletter, send your proposal by email to Frédéric Vanderhaegen: frederic.vanderhaegen@univ-valenciennes.fr*)*

1. A new welcoming page of our website

The first home page of our website has changed. If you want to refine it, please send an email to Frédéric VANDERHAEGEN.

You can now find this message on http://tc.ifac-control.org/4/5:

Welcome Message from the Chair
If you are a researcher or a practitioner and your interests include Analysis, Design, and Evaluation of Human-Machine Systems, then this Technical Committee is for you.

More precisely, if your research works or your interests focus on this shared challenge considering the design of technology with and for humans, then this TC is for you.

The objective of this TC is to exchange ideas and further understanding in the areas of Human-Machine Systems, Human-Computer Interaction (HCI), Cognitive Systems, Intelligent and Autonomous Systems and Decision Support Systems. Advances on communication and information technologies and on their impact for the human-machine system design, use and evaluation are then treated.

Some theoretical or practical concepts such as resilience engineering, affordances, dissonance engineering, situation awareness or human-automation coagency, learning, cooperation, diagnosis or human stability are shared with other communities such as Computer Sciences, Ergonomics and Cognitive Psychology or Social Sciences. These exchanges on joint interests make the actions of the TC 4.5 more relevant.

All the practical or scientific contributions on these Human-Machine Systems related topics are presented during the successful triennial symposium entitled Analysis, Design, and Evaluation of Human-Machine Systems. The next symposium will be held in Las Vegas, August 11-15 2013 (see http://www.cs.wright.edu/events/ifac/ for submissions or registrations).

For all these reasons, join us just because it is worth! You are welcome.

Frédéric Vanderhaegen, Professor

Scope
The TC 4.5 considers all conditions where humans (individuals as well as groups) use, control or supervise tools, machines or technological systems. Its actions aim at fostering the analysis, the design, the modeling and the evaluation of HMS and they include three main groups:

- *Actions for safe, secure and efficient HMS (examples of key-words: cognitive task analysis; task and function allocation; risk assessment; accident analysis; operational risk analysis; performance modelling and evaluation; organisational, technical and human reliability analysis and control; evaluation of performance, safety, security, workload, or stress; resilience engineering; dissonance engineering; human stability; human mastering of machines; humanisation of work; situation awareness; expressiveness; creativity; neuro-ergonomics; virtual life; augmented reality; virtual reality; emotion; trust; human feelings; Kansei engineering; human roles in different countries, cultures, and stages of automation; collaboration, cooperation, competition and communication, etc.)*
- *Actions on HMS interface (examples of key-words: graphical interfaces; auditory interfaces; multimedia design; network and web interfaces; multi-modal interactions in real and virtual environments; functional and adaptive interfaces; interface agents; sensory modalities; user preferences; user participation; usability; support for operational risk management, system operation, or maintenance; information management and knowledge retrieval)*
- *Actions for system design, control and supervision (examples of key-words: barrier free and changeable designs; work organization design; job design; team design; remote control or supervision; network and internet systems; remote co-ordination; mobile workplaces; wearable computers; distributed multi-agent systems; fault and human error diagnosis; learning; knowledge support; embedded automatic systems in shared environments; collaborative systems and distributed work; human-automation coagency, etc.)*

The domains of application of this TC 4.5 are very large: laboratory simulation, field experiments and observation; processing, production, quality control, research, development, marketing, finance; delivery, and services in the innovative and the traditional industries; robots, manipulators and telerobotics; computer-aided design and human-integrated manufacturing; intelligent vehicle transport systems (car, truck, rail, aircraft, spacecraft, maglev, ship); traffic control and supervision, automotive systems and aerospace; information systems; energy saving and resource recycling; nuclear and other power supply systems; chemical and other continuous processes; disaster prevention systems, security systems; medical engineering, biomedical systems and biomechanics; disabled and elderly users; education support; command, control, and communication systems; mobile networking, virtual reality, telepresence; game and entertainment (arts, music); computer-supported collaborative work; management information systems, office systems, home systems; enterprise systems; agriculture; etc

2. The 12th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems

This event is very important and your numerous contributions and participations are its success!

Please inform your colleagues and your relational networks about this event and ask them to make papers and sessions proposals.

Submit them on: http://www.cs.wright.edu/events/ifac/

Very important dates:
- Session Submission Deadline   February 4, 2013
- Paper Submission Deadline March 4, 2013
- Notification of Acceptance   April 1, 2013
- Full Paper Submission Deadline   April 15, 2013
- Early Registration Deadline May 11, 2013

3. The presentation of the GRAISyHM group

The GRAISyHM group is a French research group on Integrated Automation and Human-Machine Systems. It gathers PhD Students, researchers, professors and assistant professors from the Automatic Control community and treats on several topics such as signal, image, control, monitoring, supervision, maintenance, and human-machine systems, applied to transport or manufacturing systems.

See more details on: http://www.univ-valenciennes.fr/graisyhm/node/3

4. The presentation of an international summer school on Human-Machine Systems in Valenciennes, July 1-5, 2013, entitled "Risk Management in Life Critical Systems"

The International Summer School on Risk Management in Life Critical Systems will be held in Valenciennes, July 1-5 2013.

It is co-organized by the Joint French-American research lab between LAMIH-TEMPO/UVHC- Valenciennes (F) and HCDi/FIT-Melbourne (FL-USA) and the European Research Group GDR HAMASYT (Human Machine Systems in Transportations). The organizers are Patrick Millot , Guy A. Boy, Frederic Vanderhaegen. For more details, please contact the secretary, Philippe Polet (philippe.polet@univ-valenciennes.fr).

The program is in course and will integrate about 18 hours lectures and case studies and 8 hours of demos and industrial visits, over 5 days.

The objective of this international summer school is to present a state of the art on risk management in life critical systems. Risk management deals with prevention, decision-making, action taking, crisis management and recovery, taking into account consequences of

unexpected events. We are interested in ecological processes, human behavior, as well as control and management of life-critical systems, potentially highly-automated.

Three main attributes define life-critical systems, i.e., safety, efficiency and comfort. They typically lead to complex and time-critical issues. They belong to domains such as transportation (trains, cars, aircraft), energy (nuclear, chemical engineering), health, telecommunications, manufacturing, and services. Topics are related to risk management principles, methods and tools, case studies and include (but not limited to):

- Situation Awareness and Impact of new technology
- Reliability assessment: human errors as well as system failures
- Emotions
- Procedures, system monitoring, control and management
- Socio-organizational issues of crisis occurrence and management
- Cooperative work including human-machine cooperation and CSCW
- Responsibility and accountability: task and function allocation, authority sharing
- Interactivity, networking and management evolution
- Lessons learned for Human-Centered Design

Location: LAMIH, University of Valenciennes-CNRS Le Mont Houy 59313 Valenciennes Cedex 9

Sponsors: PUF face, GDRE HAMASYT, IFAC TC Human-Machine Systems, GDR MACS, CNRS, Région Nord Pas de Calais, GRAISyHM, Club EEA

The final program and the detzail for the registration fees will be soon available on: http://www.univ-valenciennes.fr/ssrmlcs2013.

4. Journals on Human-Machine Systems

IEEE SMC has changed the title of its journals.
- "IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans" is now "IEEE Transactions on Systems, Man, and Cybernetics: Systems"
- "IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics" is now "IEEE Transactions on Cybernetics"
- "IEEE Transactions on Systems, Man, and Cybernetics - Part C: Applications & Reviews" is now "IEEE Transactions on Human-Machine Systems"

Do not forget to publish your research results on the affiliated IFAC journals: "Automatica", "Control Engineering Practice", "Annual Reviews in Control", "Engineering Applications of Artificial Intelligence", "Journal of Process Control", "Mechatronics". See more details about the journals on: http://www.ifac-control.org/publications/journals.

5. A list of future events related to Human-Machine Systems

- The 12th IFAC/IFIP/IFORS/IEEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems, Las Vegas, USA, August 11-15 2013 (http://www.cs.wright.edu/events/ifac/).

- The International Summer School on Risk Management in Life Critical Systems, Valenciennes, France, July 1-5 2013 (….)

- The IEEE Conference on Systems, Man, and Cybernetics, Manchester, UK, October 13-16, 2013 (http://www.smc2013.org/).