

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

Issue 2014_1, January 2014 (Newsletter of IFAC TC 4.5 available on: <http://tc.ifac-control.org/4/5/newsletter>)

Happy new year and best wishes for 2014 hoping to see all the human-machine systems communities at the 2014 IFAC World Congress, 24-29 August 2014, Cape Town, South Africa!

This first 2014 newsletter contains:

1. The proceedings and the feedbacks of our 12th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems, August 11-15, Las Vegas, USA
2. A proposal for an industrial co-chair for our TC
3. A new Editor-in-Chief team for the Cognition Technology & Work journal
4. 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. Proceedings and feedbacks of our 2013 symposium

Proceedings:

Proceedings of our symposium are available on: http://www.ifac-papersonline.net/Analysis_Design_and_Evaluation_of_Human-Machine_Systems/index.html

Scope and Aim:

Wright State University hosted the 12th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems in Las Vegas, Nevada, United States of America from Aug 11, 2013 through Aug 14, 2013.

The symposium, held every triennium, continued on the success of the previous meetings, started since 1982: Valenciennes (France, 2010), Seoul (Korea in 2007), Atlanta (USA, 2004), Kassel (Germany, 2001), Kyoto (Japan, 1998), Boston (USA, 1995), The Hague (Netherlands, 1992), Xi'an (China, 1989), Oulu (Finland, 1988), Varese (Italy, 1985) and Baden-Baden (Germany, 1982).

The objective of the symposium was to provide an international forum for the exchange and sharing of the latest scientific and technological developments in human-machine systems research. The symposium highlighted the transformative impacts in research, theory, and application that are the result of recent technological advances. Domains of application included military; process control; medical; and other large, complex, and dynamic systems.

The next edition of this symposium is going to be held in Kyoto, Japan in 2016.

Participants, Program and Papers:

There were a total of 112 participants from 19 different countries.

All papers were reviewed by a minimum of two reviewers. Based on the reviews, eighty papers were invited to upload their final version and present their paper in the conference.

The initial filtering for the best papers was based on the reviews that were given to each paper. After the initial filtering, two senior committee members judged the quality of the remaining papers based on the technical soundness, awareness of literature, technological contribution, originality of the concepts, style and clarity, technical presentation and importance of results.

The program also proposed plenary sessions and keynotes:

- Dr. Gunnar Johannsen (Germany) who talked about “Human-Machine Interaction, Music and Mind”.
- Dr. Morley Stone (United States of America) who talked about “Not Your Father’s Human Systems Research”.
- Dr. William Rouse (United States of America) who talked about “Multi-Level Modeling of Complex Socio-Technical Systems”
- Dr. Guy Boy (United States of America) who talked about “Human-System Integration: Unifying Systems Engineering and Human – Centered Design.

Due to the excellent quality of the selection and of the papers, several awards were distributed:

- The Asian best paper award: Tomoyuki Nakao, Ryota Sakamoto and Ken’ichi Yano for their paper "Drawing Assist System Considering Nonperiodic Involuntary Movements"
- The European best paper award: Ulrike Schmunzsch and Lea Henrike Feldhaus for their paper "The Warning Glove: Wearable Computing Technology for Maintenance Assistance in IPS2"
- The American best paper award: Karl Hendrickson, Mary Fendley and Gilbert Kuperman for their paper “Modeling Analyst Process of Transforming Data into Understanding”
- The World best paper award: Simon Enjalbert, Kiswendsida Abel Ouedraogo and Frederic Vanderhaegen for their paper "Validation of a Unified Model of Driver Behavior for Train Domain"

The selection committee that decided these awards was composed by: S Narayanan (USA) and T. Sawaragi (Japan).

The next important meeting for Human-Machine Systems community is the 13th symposium planned in Japan in 2016 and will be organized by Prof. Tetsuo Sawaragi from Tokyo University, Japan. In 2019, a proposal was received by the IFAC TC HMS chair to organize the symposium in

1. Tallinn, Estonia by the Institute of Computer Science of Tallinn University of Technology.
2. TU Delft, The Netherlands.

A discussion is planned during the 2014 IFAC World Congress about these proposals.

So see you soon for another interesting and excellent symposium or meeting!



F. Vanderhaegen, IPC Chair and S Narayanan, NOC Chair

2. A proposal for an industrial co-chair of our TC

Regarding the future IFAC objectives discussed in Milano during the IFAC World Congress, the TCs were invited to integrate industrial partners as co-chairs. Our TC has a proposal for the IFAC World Congress in South Africa: the candidature of the President of UReason. UReason participated to our symposium in Valenciennes (2010) and at Las Vegas (2013).

After our last TC meeting in Las Vegas, a call was reminded and UReason was interested. Find enclosed a message from UReason to the Human-Machine systems communities:

“UReason is an Anglo-Dutch software company founded in 2001.

The company’s DNA comes, on one hand, from more than 25 years of experience in the world of Real-Time Reasoning systems and, on the other hand, from a strong expertise in the area of process safety and Alarm Management.

We believe that, while technological progress has significantly improved the reliability of Control and Safety systems, this same progress has actually resulted in a strong degradation in term of decision-support systems and that the human factor has not been seriously taken into account.

As creating new alarms became basically free, modern SCADA or DCS user interfaces have started to present so many information that they are setting up the stage for the occurrence of the inevitable human error.

If human error cannot be fully prevented, it is still the responsibility of every company to make sure that the system they provide to their operators is design to, at least, avoid placing operators in error-inducing situation.

Unfortunately a lot of modern HMIs have somehow lost their initial purpose and are drowning operators under a flood of useless information.

Our purpose, as a company, is to provide pragmatic software solutions that allow for massive filtering of alarms and events and for the implementation of smart decision support rules that help operators assess situations make better decisions and get guidance about how to solve problems and keep the process in its safe envelope.

This is performed through our mainstream product line called OASYS-AM. One of OASYS-AM’s major contribution is the ability to create filtering or decision-support rules without any programming.

We believe that it is the first time that domain experts and end-users in general can take full ownership of such technologies. Going from knowledge to an online systems no longer require a programmer in the loop and we believe it’s a revolution.

If OASYS-AM is focused on simplicity and pragmatism, we also have a broad range of advanced modules that can be used to design very specialized applications in fields such as diagnosis, real-time data analysis, pattern detection, topological reasoning, real-time risk analysis, etc.”

Laurent Bourrouilhou, UReason

For more details, see: <http://www.ureason.com/>

3. A new Editor-in-Chief team for the Cognition Technology & Work journal

Since 1st January 2014, F. Vanderhaegen is editor-in-chief of the International Journal Cognition Technology & Work (2012 Impact Factor = 0.659) He is joining Oliver Carsten (Univ. Leeds, UK) and Pietro-Carlo Cacciabue (Politecnico Milano, IT) for this mission.

Cognition, Technology & Work focuses on research results, concepts and theory related to Human-Machine systems. Human in the loop, technology for and with human, interactions between human and machine, cognitive modeling, ergonomics, degrees of automation, system autonomy, knowledge engineering, learning, impact of technical, human or organizational factors, etc. are examples of topics that are treated by the authors and the readers of this international journal. The domains of application presented on this Journal are very large. There are applications such as: transport, medicine, hospital, energy, management, production, education, or robotics.

Colleagues from the research communities on Human-Machine Systems are invited to submit their contributions.

For more details, see: <http://www.springer.com/computer/hci/journal/10111>

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

- TRA2014 Transport Research Arena 2014, 14-17 April 2014, Paris, La Défense, France: <http://tra2014.sciencesconf.org/>
- 10th ITS European Congress, 16 – 19 June 2014, Helsinki Finland: <http://www.itsineurope.com/its10/>
- 16th International Conference on Human-Computer Interaction, 22 - 27 June 2014, Creta Maris, Heraklion, Crete, Greece: <http://www.hcii2014.org/>
- International Conference on Human-Computer Interaction in Aerospace (HCI-Aero 2014), NASA Ames Conference Center, California, July 30th – August 1st, 2014: <http://research.fit.edu/hci-aero/HCI-Aero2014/Home.html>
- 19th World Congress of the International Federation of Automatic Control, Cape Town, South Africa, 24-29 August 2014: <http://www.ifac2014.org/>
- ERGO-IA2014, Bidart-Biarritz, 15-17 Octobre 2014 : <http://www.ergoia.estia.fr/>