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

Issue 2015_1, January 2015 (Newsletter of IFAC TC 4.5 available on: http://tc.ifac-control.org/4/5/newsletter)

Hopping that 2015 will be a successful and happy year for all of us and for our TC 4.5!

Do not hesitate to transmit this newsletter to your colleagues and networks, and to invite them to participate to our TC. Thanks.

This first 2015 newsletter contains:

1. The updating of our TC member list
2. The announcement of the 2nd international summer school on Risk Management
3. The announcement of the special issue on human-machine systems edited on the European Journal of Automation
4. The announcement of the creation of the Research Work Group on Human-Machine Systems
5. The announcement of the 2015 Human-Machine System workshop in Berlin
6. The announcement of our 2016 IFAC/IFIP/IFORS/IEA symposium on Analysis, Design, and Evaluation of 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. The updating of our TC member list

As announced on the previous newsletter, the list of the members of our TC has to be updated. Here is enclosed the new list of the chair, co-chairs and the members:

Chair:

Prof. **Frédéric Vanderhaegen**, Human-machine systems, University of Valenciennes, France

Co-chairs:

- Prof. **Sundaram Narayanan**, Department of Biomedical, Industrial and Human Factors Engineering, Wright State University, USA
- Prof. **Tetsuo Sawaragi**, Department of Mechanical Engineering and Science, Kyoto University, Japan
- Dir. **Laurent Bourrouilhou**, UReason International BV, Delft, Netherlands

Members:

- Dr. **Götz Botterweck**, Ireland, Lero - The Irish Software Engineering Research Centre , University of Limerick
- Dir. **Laurent Bourrouilhou**, UReason International BV, Delft, Netherlands
- Professor Dr. **Guy A. Boy**, USA, FIT (Florida Institute for Technology) - Human-Centered Design Institute

- Prof. Dr. **Galip Cansever**, Yildiz Technical University, Department of Control and Automation Engineering, Davutpasa Campus
- Prof. **Jose Roberto Castilho Piqueira**, Brazil, Federal Univ. of Rio Grande do Sul
- Prof. **Pablo Castells**, Spain, Escuela Técnica Superior de Ingeniería Informática. Universidad Autónoma de Madrid
- Professor **Myung Jin Chung**, Korea, KAIST
- Dr. **Yun Hyung Chung, Korea**, Korea Institute of Nuclear Safety
- Professor Dr. **Giovanni De Poli**, Italy, Center of Computational Sonology, Dept. of Electronics and Informatics
- Prof. **Tadeusz Dobrowiecki**, Hungary, Budapest Univ. of Technology & Economics , Dept. of Measurement & Information Systems
- Professor **Peter F. Elzer**, Germany, IPP, TU Clausthal
- Professor **Cesare Fantuzzi**, Italy, Department of Science and Engineering Methods, University of Modena and Reggio Emilia
- Professor Dr. **Florin-Gheorghe Filip**, Romania, Romanian Academy, INCE
- Dr. **Robert Genser**, Austria, Institute for Handling Devices and Robotics
- Dr.-Ing. Dipl.-Inf. **Daniel Görlich**, Germany, Frounhofer Institute for Experimental Software Engineering
- Dr. **Dong-Han Ham**, United Kingdom, School of Computing Science, Middlesex University
- Dr. **Peter G. Higgins**, Australia, Faculty of Engineering and Industrial Science, Swinburne University of Technology
- Professor **Erik Hollnagel**, Sweden, CSELAB, Department of Computer and Information Science, University of Linköing
- Professor **Baosheng Hu**, China, Systems Engineering Institute, Xi'an Jiaotong University
- Professor Dr. **Koichi Inoue**, Japan, Department of Mechanical Engineering, Graduate School of Engineering, Osaka Sangyo University
- Dr. **Meike Jipp**, Germany, Automation Laboratory, Institute of Computer Engineering, University of Heidelberg
- Professor Dr.-Ing. **Gunnar Johannsen**, Germany, Systems Engineering and Human-Machine Systems , University of Kassel
- Dr. **Andrzej Kasinski**, Poland, Inst. of Control & Information Engg. Poznan TU
- Dr. **Kensuke Kawai**, Japan, Toshiba Corporation (retired)
- Professor **Alex Kirlik**, USA, Institute of Aviation, University of Illinois at Urbana-Champaign
- Dr. **Naoyuki Kubota**, Japan, Tokyo Metropolitan University, Graduate School of System Design
- Dr. **Alar Kuusik**, Estonia, EE ELIKO Technology Competence Centre Akadeemia tee 23A
- Dipl.-Inf. **Sandro Leuchter**, Germany, Fraunhofer Institute for Information und Data Processing (IITB), Dept. Interoperability and Support Systems
- Professor Dr. **Alexander H. Levis**, USA, George Mason University
- Professor Dr. **Morten Lind**, Denmark, DTU Electrical Engineering
- Dr. **Franck Mars**, Head of the PsyCoTec group (Psychology, Cognition, Technology), IRCCyN - Nantes
- Dr. **Lena Mårtensson**, Sweden, Department of Industrial Economics and Management, Royal Institute of Technology
- Professor Dr. **Patrick Millot**, France, Laboratoire d'Automatique et de Mécanique Industrielles et Humaines (LAMIH), University of Valenciennes
- Prof. **Daihwan Min**, Korea, MIS Department, Korea University at Jochiwon
- Prof. **Mirolyub Mladenov**, Bulgaria, University of Ruse "A. Kanchev, Department of Automatics, information and control engineering
- Dr. **Roberto Montanari**, Italy, Department of Science and Engineering Methods, University of Modena and Reggio Emilia
- Prof. Dr. Ir. **Max Mulder**, The Netherlands, TU Delft, Faculty of Aerospace Engineering, Control and Simulation
- Dr. **Anja Naumann**, DLR, Germany
- Prof. **Sundaram Narayanan**, Department of Biomedical, Industrial and Human Factors Engineering, Wright State University, USA
- Dr. **Sven Nomm**, Estonia, TUT, Control Systems Dept., Institute of Cybernetics
- Dr. **Janet M. Noyes**, United Kingdom, Department of Experimental Psychology, University of Bristol
- Mr. **Holger Oortmann** , Germany, Siemens AG, CT IC 7

- Dr. **Carl A. Pickering**, United Kingdom, Jaguar and Land Rover Res. Jaguars Cars Ltd, Engg. Centre
- Professor **Amy Pritchett**, USA, Georgia Institute of Technology
- Dr. **Daniel Repperger**, USA, U.S.A Air Force, AFRL/HECP
- Professor **Bernard Riera**, France, CreSTIC, UFR Sciences Exactes et Naturelles
- Assistant Prof. **Ling Rothrock**, Pennsylvania State University, USA
- Prof. Dr.-Ing. **Matthias Rötting**, Germany, Human-Machine Systems, Institute of Psychology and Ergonomics, Technical University of Berlin
- Prof. **Jose Luis Pons Rovira**, Spain, Grupo de Bioingenieria
- Professor Dr. **Andrew P. Sage**, USA, Department of Systems Engineering and Operations Research
- Professor Dr. Eng. **Tetsuo Sawaragi**, Japan, Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University
- Professor Dr.-Ing. **Ludger Schmidt**, Germany, Human-Machine Systems Engineering, University of Kassel
- Prof. **Marcin Sikorski**, Poland, Faculty of Management and Economics Gdansk UT
- Dr. **Francisc Sisak**, Romania, Universitatea "Transilvania" Brasov
- Dr. **Charlotte Skourup**, Norway, ABB AS, Corporate Research Center
- Professor **Johan Stahre**, Sweden, Division of Production Systems, Chalmers University of Technology
- Professor D. Sc. **Vadim L. Stefanuk**, Russia, Institute for Information Transmission Problems
- Professor **Tan Kay Chuan**, Singapore, Department of Industrial and Systems Engineering, National University of Singapore
- Professor **Tibor Vámos**, Hungary, Computer And Automation Institute, Hungarian Academy
- Prof. Dr. **Frédéric Vanderhaegen**, France, CNRS, LAMIH-University of Valenciennes
- Professor **Kim J. Vicente**, Canada, Cognitive Engineering Laboratory, Dept. of Mechanical & Industrial Engineering, University of Toronto
- Professor **Peter Wieringa**, The Netherlands, Man-Machine Systems Group, Delft University of Technology
- Prof. **Wan Chul Yoon**, Korea, KAIST
- Prof. Dr.-Ing. **Jianhua Zhang**, China, School of Information Sciences and Engineering, East China University of Science and Technology
- Professor Dr.-Ing. **Detlef Zühlke**, Germany, Center for Human-Machine Interaction, German Research Center for Artificial Intelligence

These members were deleted from the list because they gave no feedback:

- Dr. Frauke Driewer, Germany, University of wuerzburg
- Professor Dr. Ron J. Patton, United Kingdom, Department of Engineering
- Junior-Professor Dr.-Ing. Dipl.-Psych. Kerstin Roese, Germany, User-centered Product Development, Center for Human-Machine-Interaction, University of Kaiserslautern
- Dr. Ahmad Skaf, France

Please if new information about these colleagues is available or if any error is identify, send it to Frédéric Vanderhaegen.

Note: There is no change made on the first home page of our website. If you want to refine it, please send a proposal by email to Frédéric Vanderhaegen.

2. The announcement of the 2nd international summer school on Risk Management

The second international summer school entiled "Risk management: a human-centerd design approach" will be held at Valenciennes, France, July 6-9 2015. It is organized by P. Millot (LAMIH-PUF), M.-P. Pacaux-Lemoine (LAMIH-ARCIR SUCRé) and C. Magniez (Railenium). The scientific committee is composed by P. Millot (LAMIH-PUF), G. Boy (FIT, NASA,PUF), and F. Vanderhaegen (LAMIH, GDRI HAMASYTI, IFAC HMS).

The summer school will focus on the Human issues of Risk Management and combine results from three projects:

- 3 years of common research of the French-American joint lab between LAMIH/UVHC & HCDi/FIT.
- 1 year research of the ARCIR SUCRé regional project on Human-robots cooperation in hostile situation.
- 1 year of the International Research Network HAMASYTI (HumAn MAchine SYstems in Transportation and Industry – GDR I HAMASYTI).

The provisional planning includes these lecturers:

- Guy A. Boy (HCDi/FIT, NASA KSC, USA) on risk in aerospace
- Patrick Millot (LAMIH/UVHC, F) on risk in Civil Security
- Lucas Stephane (HCDi/FIT, USA) on risk in Nuclear Industry
- Frédéric Vanderhaegen (LAMIH/UVHC, F, GDR I HAMASYTI) on dissonance engineering and human reliability
- Oliver Carsten (Univ Leeds, UK) on risk in car driving
- Marie-Pierre Pacaux-Lemoine (LAMIH/UVHC, F, ARCIR SUCRé) on risk & human-robot cooperation
- Lahcen El Hiki (Univ Mons, B) on risk at Hospital
- Makoto Itoh (Univ Tsukuba, J) on risk in railway
- Frank Flemich (Univ Aachen, D) on human-machine cooperation in car driving
- Pedro Ferreira (Univ Lisbonne, P) on resilience engineering
- Xiany Zeng (ENSAIT, Roubaix, F, ARCIR-SUCRé) on intelligent clothes
- Two industry representatives (via Railenium)

The final program will be available soon.

For more details, please contact P. Millot by email: patrick.millot@univ-valenciennes.fr.

3. The announcement of the special issue on human-machine systems edited on the European Journal of Automation

A special issue entitled "Methods, models and tools to analyze and control human-machine systems" was edited on the European Journal of automation (JESA: Journal Européen des Systems Automatisés). The contributions are listed below and are available on the journal link http://jesa.revuesonline.com/resnum.jsp?editionId=1880:

- Introduction. F. VANDERHAEGEN - pp.247-250
- Necessity of incorporating human factors in the design of interactive systems. R. MOLLARD, M. WOLFF - pp.251-260
- Contribution of tablets to the support of children and adolescents with autistic disorders . M. WOLFF, M. PILAR GATTEGNO, J.-L. ADRIEN, C. GABEAU, P. ISNARD - pp.261-282
- Considering human factors in BCI experiments: a global approach. C. BOTTE-LECOCQ, M.-H. BEKAERT, J.-M. VANNOBEL, S. LECLERCQ, F. CABESTAING - pp.283-301

- Ergonomic approaches to integrate touch screen in future aircraft cockpits. J. BARBÉ, R. MOLLARD, M. WOLFF - pp.303-318
- Identifying the cognitive causes of human error through experimentation. S. FISCHER, M. ITOH, T. INAGAKI - pp.319-338
- Approche de détection et d'explication d'erreur de commande par filtrage robuste. P. MARANGÉ, S. DEBERNARD, F. GELLOT, M.-P. PACAUX-LEMOINE, A. PHILIPPOT, T. POULAIN, B. RIERA, J.-F. PÉTIN - pp.339-372
- Contribution du persona à la résilience des systèmes. Impact sur les interfaces utilisateur. J.-R. RUAULT, C. KOLSKI, F. VANDERHAEGEN - pp.373-396
- Human cognitive performance. Sensing, assessment, and augmentation techniques. P. KIDAMBI, M. S. SHERWOOD, J. G. PARKER - pp.397-420
- Détecter la somnolence des conducteurs dans le transport terrestre. État de l'art. N. RACHEDI, D. BERDJAG, F. VANDERHAEGEN - pp.421-451
- User-designed movement interactions. An exploratory study for natural interactions. A. CLAY, M. WOLFF, R. MOLLARD - pp.453-472
- Sur un modèle énergétique de cycliste pour optimiser l'hybridation d'énergie humaine. D. GROSSOLEIL, D. MEIZEL - pp.473-492
- Analyse de manœuvres d'évitement en situation d'urgence dans le cadre de la conduite automobile. M. ITOH, M.-P. PACAUX-LEMOINE, F. ROBACHE, H. MORVAN - pp.493-509
- Interactions homme-machine dans les véhicules automatisés. Le cas du partage du contrôle latéral à basse vitesse. C. SENTOUH, J.-C. POPIEUL, S. DEBERNARD, S. BOVERIE - pp.511-538

4. The announcement of the creation of the Research Work Group on Human-Machine Systems

A French Research Work Group was created at the National Research Network MACS (Modelling, Analysis and Control of dynamic Systems – GDR MACS). This group includes people from different scientific communities that work around the human-machine system topics.

There is no registration fee and colleagues can make their registration at: http://www.univ-valenciennes.fr/gdr-macs/user/register.

The presentation of this group is on: http://www.univ-valenciennes.fr/gdr-macs/node/21878.

Meeting and exchanges are in French or in English. Everybody is welcome to participate.

5. The announcement of the 2015 Human-Machine System workshop in Berlin

The details of the next 2015 Human-Machine System workshop in Berlin are given below.

Please submit contributions to: www.zmms.tu-berlin.de/bwmms

11th Berlin Workshop on Human-Machine Systems

Focus Track:

Trends in Neuroergonomics

Keynote speaker:

Raja Parasuraman

07 - 09 October 2015

Venue: Berlin-Brandenburg Academy of Sciences and Humanities

Technische Universität Berlin
Department of Psychology and Ergonomics

Call for contributions

As it enters into its second decade, the Berlin Workshop on Human-Machine Systems 2015 will have a slightly revised format. Some of the characteristic features will be retained, e.g. the presentation format with 20-minute papers in German with the same time available for discussion. This year more contributions in English will be included on research and development topics in order to improve the integration of international research in the field of human-machine systems.

There are four options for submissions: The *Workshop Track* allows the presentation and active discussion of work in progress. The *Research Track* is reserved for work which is more advanced or completed and which will be presented to scientists working in a university or an industrial setting. Posters can also be presented for discussion in a special session.

Another important new addition is the *Focus Track,* on the second day of the workshop. It provides a whole day for international researchers to deliver papers in English. The topic this year is 'Trends in Neuroergonomics'. It will offer insights into the latest approaches to research in neuroergonomics, the scientific investigation of how the human brain performs in real-world tasks. This year, papers will cover new approaches which allow the imaging of human brain activity during active movement and interaction with a system. New approaches will also be presented for the evaluation of neurophysiological data in real-time, allowing direct control of systems by means of human brain activity.

The Focus Track will conclude with the keynote speech on neuroergonomics. We are very fortunate to be able to welcome Professor Raja Parasuraman, the founder of the research field of neuroergonomics as this year's key note speaker.

Programme

- *Workshop Track*
- *Research Track*
- *Focus Track*
- *Poster session*

Main topics in 2015

- **Focus Track**: Trends in Neuroergonomics (Mobile Brain/Body Imaging, Brain-Computer Interfaces, Neuroadaptive Technology)
- Usability & User Experience
- Modelling & Simulation
- Cognitive Modelling
- Technology design and demographic change
- Multimodal use concepts
- Methods for the design, evaluation and anticipation of human-machine systems

Dates and deadlines

01.05.2015	Deadline for the submission of abstracts, Focus Track contributions, and proposals for Special Sessions
01.06.2015	Start of review of contributions
01.07.2015	Release of provisional programme and start of registrations for Workshop
01.08.2015	Deadline for submission of manuscripts
Thurs. 7 Oct. - Sat. 9 Oct, 2015	11th Berlin Workshop on Human Machine Systems

Submissions

Specialists from various fields (engineers, computer scientists, psychologists, designers, etc.) are invited to submit proposals for *Special Sessions,* and papers in German or English for the *Workshop Track, Research*

Track or *Focus Track.* If preferred, contributions can also be submitted as Poster.

Special Session

In a *Special Session,* the proposers have a 2-hour block at their disposal for their special topic. They can choose their own format (e.g. panel discussions, debates, or workshops). Submissions for *Special Sessions* should include the title of the session, the names and addresses of the organisers, and an overview of the planned *Special Session* (about 1000 words) with a list of authors or participants. Where appropriate, the individual contributions should be submitted together (each about 1600 words).

Workshop Track

The *Workshop Track* is dedicated to the presentation and active discussion of work in progress. It is intended to encourage interaction between the participants during the workshop. Contributions can be as oral presentation of posters. Submissions for the *Workshop Track* should include the title, the names and addresses of all authors (with e-mail address), the chosen presentation form (oral presentation or poster), the presentation language (German or English), the relevant subject topic, and the contribution itself (about 1600 words).

Research Track

The *Research Track* is reserved for work which is at an advanced stage or already completed and which will be presented to scientists working in a university or an industrial setting. Papers submitted for the *Research Track* should include the title, the names and addresses of all authors (with e-mail addresses), the presentation language (German or English), the relevant subject topic, and the contribution itself (about 1600 words).

Focus Track – Trends in Neuroergonomics

For the *Focus Track,* scientists will be invited to give talks on work they have completed in the field of neuroergonomics. Young investigators (post-docs or PhD students) are invited to submit contributions for consideration on their own initiative (in the same format as for the *Research Track*). We particularly welcome submissions from female scientists. Technological contributions, applications, and analytical approaches will be considered. Contributions will be presented and published in English. After acceptance of a contribution for the *Focus Track,* an extended form (about 12,000 words) will be subjected to *peer review* as a full scientific paper for publication (see below).

After receiving the submissions for all Tracks, the Programme Committee will decide which to include in the workshop programme.
Submissions should be made to: www.zmms.tu-berlin.de/bwmms.

Publication of contributions

In the tradition of the Berlin Workshop, all accepted contributions for the Workshop Track and Research Track will be made freely available on the Internet and published with ISBN number in the Proceedings of the 11th Berlin Workshop on Human-Machine Systems. The published contributions will have a length of four pages. As a new feature, contributions to the Focus Track can be published in the journal *Frontiers in Human Neuroscience*. These scientific papers will, however, first be subjected to an additional, external peer review.

Organiser

Department of Psychology and Ergonomics (IPA)
Technische Universität Berlin

Venue

Berlin-Brandenburg Academy of Sciences and Humanities
Jägerstr. 22/23
10117 Berlin, Germany
www.bbaw.de

Organisation of the Focus Track

Biological Psychology and Neuroergonomics, IPA
https://www.bpn.tu-berlin.de/
Prof Klaus Gramann
Dr Thorsten O. Zander

Conference coordination & organisation

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6. The announcement of our IFAC/IFIP/IFORS/IEA symposium on Analysis, Design, and Evaluation of Human-Machine Systems

The 13th IFAC/IFIP/IFORS/IEA Symposium on Analysis, Design, and Evaluation of Human-Machine Systems will be held at Kyoto, Japan, August 30 – September 2, 2016.

It is organized by Kyoto University. For more details, please contact the chair of National Organizing Committee, T. Sawaragi by email (sawaragi@me.kyoto-u.ac.jp).

The International Program Commiiee invites you to submit a proposal and join us in this prestigious international event for scholars and experts. The contributions of IFAC members and of colleagues from other communities (e.g., IFIP, IFORS or IEA), the symposium will be a high success such as the previous versions in Europe, America, or Asia.

Please, note the important planned dates on your agenda:
- Paper and session submission deadline: 21.11.2015
- Notification of acceptance: 28.02.2016
- Full paper submission deadline: 25.04.2016
- Early registration deadline: 30.05.2016

Information about this symposium will be available soon on: http://www.syn.me.kyoto-u.ac.jp/IFACHMS2016/.