

Rhein-Waal University of Applied Sciences |
Friedrich-Heinrich-Allee 25 | 47475 Kamp-Lintfort | Germany

Prof. Dr. Kai Essig
Human Factors, Interactive Systems
Campus Kamp-Lintfort
Telephone: +49 (0) 28 42 / 908 25-9715
Fax: +49 (0) 28 42 / 908 25-160
E-Mail: kai.essig@hochschule-rhein-waal.de



International Workshop MASIL

Date: 28. - 29. March 2019
Room: 04 01 305

Rhine-Waal University of Applied Sciences (HSRW)
Friedrich-Heinrich-Allee 25
47475 Kamp-Lintfort, Germany

Invitation for participation:

You are cordially invited to participate in the HSRW-I²R Workshop on „Multimodal Assistive Systems - Improving Human Quality of Life and Performance using Modern Technologies“ (MASIL), sponsored by the German Research Foundation (DFG). This two-day workshop is intended to provide a forum for researchers and industry players to discuss, explore and brainstorm on the research and application trends of Assistive Technologies for the enhancement of human life in professional and private activities.

Assistive Technologies (AT) are beginning to thrive not only the industrial, but also the private area. In order to be successful and to be accepted by the target users, AT's have to be developed along user requirements and needs in order to allow them to live a self-sufficient life in an age appropriate way according to their mental and physical capabilities. Human Enhancement is the use of technological means to enhance human capabilities and performance, and overcome limitations inherent to the human body and brain. This includes Assistive Technologies for disabled and elderly people, as well as for professional activities in work- and research environments. Application areas, among others, are professional and domestic environments as well as new opportunities arising from social developments such as inclusion and demographic change.

Recently, research has been shifted to design and develop different stationary- and mobile ATs, such as Smart Glasses (i.e., Magic Leap One, Microsoft HoloLens), Head-Mounted Virtual Reality Displays, (e.g., Oculus Rift, Samsung Gear VR, HTC Vive), low cost prosthesis, smart wearables, cognitive robots or mobile eye- and motion tracking systems. These systems can provide new possibilities for recording, analyzing, and optimizing human performance and therefore provide support, coaching or assistance in various application fields. Application fields are working and training environments, human-machine interaction, speech and action assistance, as well as household appliances.

Although there have been many advancements in the field of ATs over the recent years, there are still a lot of challenges ahead which have to be solved before these systems can be applied in human-machine interactions and will be accepted by a broad public. These challenges include, among others, improved comfort and reliability, privacy and cognitive capabilities. Existing solutions work quite well in isolated and well structured application fields but lack of suitable generalization abilities. Furthermore, they do not provide an adaptive individual diagnostic and action support and therefore always react in the same manner when different users interact with the respective ATs within the same environment. A further argument is that the hardware and software components are still not matured and stable enough for an autonomous long term use. Additionally, target users have not been sufficiently integrated in the developmental processes and therefore they are not aware of all the developments and progresses made in the field of ATs over the recent years. Furthermore, big companies like Google or Apple can dominate the development of AT systems because of their enormous amount of financial resources and collected user data. To prevent this, there is the need for open-source, open-hardware and cost reduced, as well as data proofed alternatives.

For these reasons AT currently are often perceived more as gadgets and not as serious tools for human enhancement. Additionally, the majority of potential target users are not sufficiently informed about existing AT technologies and how they can assist users in everyday situations.

This international workshop strives to stimulate the interaction of relevant and different research and application communities with respect to implications, research challenges, methodological standards, new techniques and applications in the area of modern Assistive Technologies (ATs) to improve human quality of life and performance. We are providing a forum for researchers from human-computer interaction, context-aware computing, robotics, computer vision and image processing, psychology, sport science, eye tracking and industry to discuss new techniques and approaches regarding the above mentioned lines of research that go far beyond existing AT techniques and solutions. The focus will be on a more human-centered design and target-user requirement approach to AT systems, the need for more general and cognitive components, for trustworthy, transparent, context/situation aware and open-source alternatives, as well as the establishment of advisory services where potential users can get more information about existing AT solutions. Furthermore, this workshop will highlight the importance of ethical, legal and social implications (ELSI) for the development of modern and trustworthy AT systems.