

# ONE PAGE EXPERTISE DESCRIPTION

## INFORMATION ABOUT THE EXPERT

ORGANISATION	UMONS, ISIA LAB, NUMEDIART Institute
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TYPE OF PARTNER	University
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POSITION	Senior researchers (post-doctoral position)
DATE OF PUBLICATION	

## EXPERTISE OVERVIEW

**TOPIC(S) OF INTEREST:** human-computer-interaction, augmented and virtual reality, robotics

**HEADLINE:** Human-computer-interaction in the context of artificial intelligence and smart spaces

### **POTENTIAL CONTRIBUTION:**

UMONS is one of the major Walloon players in artificial intelligence (AI) with the Numediart Institute. Our projects have led to the use of VR headsets, VR simulation and eye data acquisition in VR headsets. The Numediart Institute also has expertise in the development of AI algorithms for use on portable platforms through ongoing projects.

The Information, Signal and Artificial Intelligence (ISIA) Lab of University of Mons (UMONS) performs research on intelligent systems for creating and interacting with media content (sounds, speech, texts, images, videos, gestures, 3D, etc.).

Within this call we can provide technological bricks in the following domains:

- Motion capture and analysis / Intelligent spaces (smarts spaces)

Use eye tracking, motion capture and human-activity-analysis (HAA) in manufacturing settings to improve sustainability and manufacturing agility. In particular, human behaviour, gesture analysis and sentiment analysis could be employed in this regard.

- Understanding and navigation in multimedia data

Multi-modal data navigation and retrieval in relation to manufacturing settings.

- Virtual reality and augmented reality

The application of virtual and augmented reality in manufacturing could for instance include the creation of a training and manufacturing simulated environment in virtual reality (VR) as well as improving work safety and preventing accidents by training in virtual environments.

Relevant publications and PhD theses:

- PhD Thesis: Sohaib Laraba, Deep Learning for Skeleton-Based Human Action Recognition (2020).
- PhD Thesis: Mahnaz Amiri Parian, Gesture Similarity Learning and Retrieval in Large-Scale Real-world Video Collections (2021)
- Mathilde Brousmiche, Cross-modal Interaction In Deep Neural Networks for Classification and Localization of Audiovisual Events (2020).
- Jean-Benoît Delbrouck, Grounding and Pragmatics for Improved Human-Robot Interactions (2020).
- Omar Seddati, Recognition and Retrieval of Multimedia Data by Deep Neural Networks (2018).
- Victor Delvigne et al., Attention Estimation in Virtual Reality with EEG based Image Regression. (2020). In "IEEE International Conference on Artificial Intelligence and Virtual Reality (AIVR)"
- Matei Mancas et al., People Groups Analysis for AR Applications. (2018). In the International Conference on 3D Immersion (IC3D)