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Augmenting and Amplifying Human Sensory Abilities with Interactive Devices

Open Bachelor/Master Thesis

Background

Advances in sensor technology and their miniaturization allow more and more devices to be equipped with various sensing technologies. Many of these devices provide qualities going *beyond* the abilities of humans. Their sensing range is either wider than human perception (e.g. optical magnification systems, ultrasound) or covers dimensions not perceptible by humans (e.g. polarization of light, electromagnetism). Human perception has evolved with specific requirements optimized for survival. Nowadays, the world is changing faster than human nature may be able to adapt. To compensate for these technology-accelerated changes, human-machine symbiosis with body-worn or body-integrated sensors can be employed to alter touch, vision, hearing or taste.

Research Goal

Goals of theses in this area may include the development of hardware prototypes, their evaluation, paired with research of related work. Especially the usability and integration of such sensing extensions is subject of the development and studies. Additionally, it is possible to differentiate between usage contexts and their specific requirements, along with ethical considerations of such augmentations.

Based on the graduate level (Bachelor, Master) and interest, the scope of the thesis is adapted.

Evgeny Stemasov
Institut für Medieninformatik
O27 / 3302

evgeny.stemasov@uni-ulm.de