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Master Thesis

Psychophysiological Assessment of Quality, Presence and Immersion

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Traditionally, theoretical constructs relevant in Human-Computer Interaction like Quality of Experience (QoE) have been measured through use of subjective methods like questionnaires and rating scales. However, these methods have several disadvantages, e.g., they are usually employed only after users' exposure and interaction with technologies and they rely on overt behavioral responses as well as conscious reflection by the users. Due to these limitations, more and more often, non-invasive methods from physiology are borrowed, which enable a continuous and less intrusive assessment of how human respond to new multimedia technologies (e.g., virtual environments). Typical methods include the measurement of peripheral activity of the heart (electrocardiography, ECG), activity of the sweat glands in the skin (electrodermal activity, EDA) and central activity of the brain (electroencephalography, EEG).

The aim of a thesis would be to develop a research question concerning human influencing factors on a relevant construct (e.g., Quality of Experience, VR-related concepts Presence and Immersion) and to design an experiment to examine their effects by means of physiological methods. Data will be collected through testing of participants at QU Lab. A processing pipeline will be created to (pre-)process and analyze the collected data (e.g., using MATLAB).

Responsibilities:

- Literature review and Development of a research question
- Test setup and study design
- Conducting the study
- Data analysis
- Thesis writing

Requirements:

- Study subject: Computer Science, Human-Computer Interaction, Psychology, Human Factors or similar
- Interest in Human-Computer Interaction, Quality of Experience, psychophysiological measurements
- Knowledge of the modules Usability Engineering, Affective Computing, Neuro-Usability desirable
- Fair programming skills desirable
- Basic knowledge of statistics and planning of empirical studies

Contact:

Please send a CV and certificates to Stefan Uhrig (stefan.uhrig@qu.tu-berlin.de) and Jan-Niklas Voigt-Antons (jan-niklas.voigt-antons@tu-berlin.de).