Evaluation of the Quality of Experience in 360 Movies from Physiological Measures

Lab and advisors
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Duration & Salary
4 to 6 months (from February/March 2018)
550-600€ per month

Context
This internship is part of a larger project, Emotive VR, funded by the West Creative Industries Regional cluster, which implicates researchers from the LS2N lab (Image, Perception, Interaction and Data User Knowledge groups) and the School of Fine Arts of Tours Angers Le Mans (ESBA TALM). This Art/Science project aims at developing a 360 movie where spectators can implicitly interact with the video content through their cerebral activity measured from EEG signals. This project addresses the research question of the measure and the analysis of the quality of experience in omnidirectional movies from physiological measures.
This internship may result to a PhD proposal.

Detailed description
The main purpose of this internship is the development of new experimental protocols to collect and analyze physiological data (EEG, GSR, heart rate…) in order to evaluate the Quality of Experience (QoE) during the visualization of omnidirectional videos in HMD. The proposed protocols should focus on the impact of the spectator viewpoint, the context of visualization and the narration on the affective dimensions of the QoE (emotions, engagement, immersion, presence, memory…).
Keywords: QoE, EEG, physiological measures, 360 videos, HMD, affective experience.

References
Egan, D., Brennan, S., Barrett, J., Qiao, Y., Timmerer, C., & Murray, N. (2016). An evaluation of Heart Rate and ElectroDermal Activity as an objective QoE evaluation method for immersive virtual reality environments. In *2016 Eighth International Conference on Quality of Multimedia Experience.*

Moon, S.-E., & Lee, J.-S. (2017). Implicit Analysis of Perceptual Multimedia Experience Based on Physiological Response: A Review. *IEEE Transactions on Multimedia*, *19*(2), 340–353.

Perrin, A.-F. N. M., Xu, H., Kroupi, E., Řeřábek, M., & Ebrahimi, T. (2015). Multimodal Dataset for Assessment of Quality of Experience in Immersive Multimedia. In *Proceedings of the 23rd ACM international conference on Multimedia..*

Yong-Jin Liu, Minjing Yu, Guozhen Zhao, Jinjing Song, Yan Ge, and Yuanchun Shi. (2017) Real-Time Movie-Induced Discrete Emotion Recognition from EEG Signals. *IEEE Transactions on Affective Computing*, 3045(c).

Appreciated skills
Good level in computer science or signal processing, interest in experimental sciences.

Application
Application must be sent to Prof. Toinon Vigier (CV + cover letter + grades).