社会と調和した情報基盤技術の構築
平成 28 年度採択研究者

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Collective Open Eyewear- Glasses to Augment the Intelligence of Society

§1. 研究成果の概要

The overall goal of the project is to create an Open Eyewear Platform, a toolset to quantify social interactions and cognitive functions of individuals and groups of people in real life settings using physiological sensing (e.g. eye movements, blink patterns, facial expressions etc.). As the day progresses, cognitive functions are subject to fluctuations. We are able to show our first strong insights in predicting alertness/fatigue over the day. The long term fatigue study was conducted successfully for over 3 weeks with over 20 participants. We present our first works In contrast to conventional alertness assessments, which are often limited to lab conditions, bulky hardware, or interruptive self-assessments, we base our approach on eye blink frequency data known to directly relate to fatigue levels. Using electrooculography sensors integrated into regular glasses' frames, we recorded the eye movements of 16 participants over the course of two weeks in-the-wild and built a robust model of diurnal alertness changes. Our proposed method allows for unobtrusive and continuous monitoring of alertness levels throughout the day. To increase attention and alertness we explored several actuation technologies (artificial muscle, vibrotactile and thermal actuation, as well as robotic limbs). We also held an eyewear workshop collocated with UbiComp and the Superhuman Sports Design Challenge.

§2. 研究実施体制
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② 研究項目
　・Cognitive Sensing
　・Open Eyewear Platform
　・Interactions to Improve Attention/Alertness

以上