Fraunhofer IDM@NTU

Cognitive Human-Computer Interaction

The study of HCI (human-computer interaction) examines how people interact with computers and the extent to which computers are developed to 'react' to people.

Research Areas

- EEG-based Emotion Recognition
- EEG-based Medical Application (ADD, Pain Management, etc)
- Neuro-marketing
- EEG-based Human Cognition Enhancement
- EEG-based E-learning
- Haptic Interfaces
- Haptic-based Molecular Docking
- Haptic-based Games

Emotion-enabled personalised digital media experience

The study aims to develop novel mathematical models and algorithms to quantify the user's emotions and levels of engagement.

New wireless EEG headsets that meet consumers' criteria for wearability, cost, portability and ease-of-use are available in the market. The proposed EEG-based emotion recognition algorithms can be used in medical applications and other areas such as entertainment, e-learning, virtual worlds and neuromarketing.

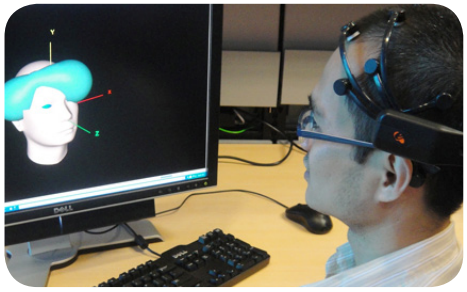
Human cognition enhancement from real-time brain state recognition

Various approaches and algorithms are proposed and implemented in real-time applications for brain performance enhancement training.

These apply to short-term performance improvement in high risk environment and long-term overall performance improvement.

Real-time brain cognitive process recognition from EEG could be used to optimise personnel workload in high risk environments and also to recognise human emotional states.

Neuro-feedback for pain management



This research validates the hypothesis that "pain has spatio-temporal location in the brain".

The results could guide practitioners in clinical management. New neuro-feedback games can also be designed to treat patients with so-called Central Pain Syndrome.

Contact

Asst Prof Dr Olga Sourina
eosourina@ntu.edu.sg
Assoc Prof Dr Wolfgang Müller-Wittig
mueller@fraunhofer.sg

Research at Fraunhofer IDM@NTU is supported by the Singapore National Research Foundation under its International Research Centre @ Singapore Funding Initiative and administered by the IDM Programme Office

Fraunhofer IGD

Interactive Digital Media Programme Office

NANYANG TECHNOLOGICAL UNIVERSITY

http://www.ntu.edu.sg/home/eosourina