THE CHINESE UNIVERSITY OF HONG KONG
Department of Electronic Engineering
Seminar

Brain-Computer Fusion via Artificial Intelligence: Recent Development and Practical Applications

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Professor
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Date: 13 Sept 2023 (Wednesday)
Time: 11:00 a.m.
Place: Rm 222, Ho Sin Hang Engineering Building, CUHK

Abstract

A brain–computer interface (BCI), sometimes called a brain–machine interface (BMI) or smartbrain, is a direct communication pathway between the brain's electrical activity and an external device. Recently, BCI techniques, combined with Artificial Intelligence (AI), has become a hot research topic in the interdisciplinary fields of neuroscience and computer science. To improve the flexibility and security of future intelligent systems, the human-computer fusion based-intelligent system requires the combination of BCI and AI. This talk will introduce our research developments in human-computer fusion and the applications into unmanned systems. We will introduce how to construct brain-computer integrated intelligent control systems to achieve intelligence enhancement by using brain-computer collaboration and brain-computer fusion methods. We hope to expand the application of brain-computer interface technology and provide new ideas and methods for intelligence enhancement.

Biography

Songyun Xie (谢松云) is a Professor at School of Electronics and Informatics, Northwestern Polytechnical University (NPU), Xian, Shaanxi, China. She is also the Director of the "Joint International Research Center on Integrated Technique of Brain-Computer Fusion for Unmanned Systems" of Shaanxi Province, and Chief Professor of "Brain Science and Brain Research Center" at NPU.
Her research interests include non-invasive brain computer interface and applications, attention based-brain cognition, intelligent enhancement by brain-computer fusion, neural information and image processing, sleep analysis and improvement, driver monitoring, emotion detection and modulation, and decision mechanism based on attention selection. She co-authored over 100 papers in international journals and conferences, and over 20 patents. She led the successful development of many intelligent control systems through brain-computer fusion, which are to be used on UAV (formation), unmanned vehicles and robots at China. The developed systems were demonstrated and exhibited at China, UK and Germany. The new techniques were also reported by many newspapers or online medias, including China News Service, People's Daily Online (China), Chinese Science News, the Global Times, Hong Kong Ta Kong Pao and Shaanxi Province News, etc.

***** ALL ARE WELCOME *****

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