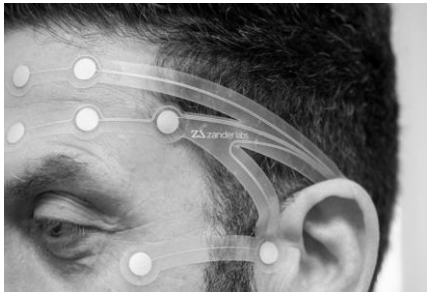
Neuroadaptive Technology for Enhanced Human-Computer Interaction and AI Learning

Reference: TD-NL-1006

TECHNOLOGY DESCRIPTION

Zander Labs has developed a cutting-edge neuroadaptive technology platform, SAMANAI, that transforms how humans interact with computers and artificial intelligence (AI). Through passive brain–computer interfaces and proprietary classifiers, Zander's technology can detect mental states – such as workload, emotions and intent – and translate them into actionable data for machines and AI. This results in a more intuitive, human-like interaction with systems and an AI that learns faster and better based on human reasoning. The core of Zander's technology lies in its universal classifiers, algorithms trained on thousands of data sets that can recognise and adapt to cognitive processes like attention, fatigue, focus and stress. The system's wearable precision electroencephalogram (EEG) sensors collect brain activity, which is processed directly on-device to ensure privacy and security.



INNOVATIVE ASPECTS

- The SAMANAI platform requires zero calibration, offering instant readiness with universal classifiers
- The lightweight EEG sensor offers long-term comfort and ensures user privacy with on-device processing
- Universal classifiers can adapt across individuals and devices, with broad applicability and no retraining for different setups
- SAMANAI adapts to human cognitive states in real-time, creating a symbiotic relationship between AI and human users
- The technology is applicable in many sectors, i.e. enhancing autonomous driving systems, healthcare, education and robotics
- The technology allows for multiple mental states to be monitored at the same time

TECHNOLOGY READINESS

TRL 4 (2025)

COUNTRY OF ORIGIN

Netherlands

LATEST UPDATE

01/2025

TAGS

#BrainComputer Interface | #NeuroadaptiveAI | #CognitiveAI | #EEG Processing | #Machine Learning | #Neuroadaptive Technology

APPLICATION AREAS

Healthcare | Education/ Training | Gaming | Automotive | Data Processing/ AI | Defence | Life Support in Space

esa TECHNOLOGY BROKER

SPACE FOR BUSINESS

BUSINESS FOR SPACE

CONTACT