

AI could transform the way we understand emotion

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An emotion recognition tool—developed by University of the West of Scotland (UWS) academics—could help people with neurodiverse conditions including autism.

Traditionally, emotion recognition has been a challenging and complex area of study. However, with recent advancements in vision processing,

and low-cost devices, such as wearable electroencephalogram (EEG) and electrocardiogram (ECG) sensors, UWS academics have collaborated to harness the power of these technologies to create [artificial intelligence](#) (AI) which can accurately read emotion-related signals from brain and facial analysis.

Professor Naeem Ramzan, Director of the Affective and Human Computing for SMART Environments Research Center at UWS, said, "Emotions are a fundamental aspect of the human experience, and understanding the signals that trigger different emotions can have a profound impact on various aspects of our lives.

"Our [recent study](#) has led to the creation of comprehensive data which can be deployed with [wearable technology](#)—using multi-sensors and artificial intelligence—to provide a vital tool for [emotion recognition](#). The data also provides a valuable resource for researchers and industry professionals, enabling them to have a greater understanding of emotional triggers, and providing a reference point which could unlock new possibilities for advancements in health and well-being, education and security."

The system uses a multimodal database, developed by UWS researchers, which consists of signals that were recorded during a study using audio-visual stimuli. Participants in the study were recorded and self-assessed their [emotional reaction](#) to each stimuli, in terms of reaction, stimulation, and dominance. Signals were captured using a camera and wearable, wireless equipment that has the potential to allow the use of affective computing methods in everyday applications.

This breakthrough could offer a new tool for clinicians, therapists, and caregivers to better understand the emotional states of individuals with a range of neurodiverse conditions; offering the potential to improve mental health assessments and enable [early intervention](#) for emotional

challenges, opening up greater possibilities for personalized therapeutic interventions.

The technology could pave the way for the creation of augmented reality, [virtual reality](#), or application in robotics specifically designed to assist individuals by understanding and expressing emotions.

Provided by University of the West of Scotland

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