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Taiwan develops novel screening device for stroke risk assessment

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The quick, accurate, inexpensive device can be a first-line screener prior to Carotid Ultrasound and can be operated from a non-professional too



Sponsored by the Ministry of Science and Technology (MOST) in Taiwan, the Advanced Medical Device Lab (AMDL), led by Professor Hao-Ming Hsiao at National Taiwan University (NTU), has successfully developed the world-first rapid screening device for the risk assessment of stroke using motion analysis, image decomposition and reconstruction, feature extraction, and AI algorithm.

This product is quick, accurate, inexpensive and can be done anywhere, anytime, without experienced operators. In less than five minutes, the user receives an evaluation report for stroke assessments including carotid artery stenosis and arrythmia information. This product allows general public to first assess their own stroke risk at home (or local communities) and then go to hospital for further diagnosis or treatments, if necessary.

Carotid artery stenosis is a leading indicator for stroke. Its degree of narrowing changes the hemodynamics of the blood flow, which reflects on the pulses of the body surface. This product is a revolutionary digital healthcare technology using motion analysis to extract invisible but useful information from our pulses for quantification of risk assessments. The entire process is completed by taking a short video clip aimed at the neck with only one simple click, anywhere, anytime. The video clip is automatically transmitted to cloud for computation and analysis. In less than five minutes, the user receives an evaluation report indicating low to high risk for stroke assessments (carotid artery stenosis and arrythmia combined). This product allows general public to assess their own stroke risk at home and take necessary actions as early as possible.

First-Line Screening Prior to Carotid Ultrasound

One of the current clinical gold standards for stroke diagnosis is carotid ultrasound. However, it relies heavily on medical

professionals to perform diagnosis and interpret results. According to the research team, this product stands higher than 90% when compared to the carotid ultrasound data. In the future, it could serve as the first-line screening tool prior to carotid ultrasound. The potential indications of this technology can be further extended to various types of disease such as arrhythmia, arteriovenous fistula, Parkinson disease, peripheral artery disease.