Can AI Detect PTSD From a Person's Voice?

The artificial intelligence tool measures patterns and tones in speech to determine an individual's mental and emotional state.

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Posttraumatic stress disorder (PTSD) is a mental health condition that affects people who have experienced a traumatic event in their lives. Now, a new study published in the journal Depression and Anxiety suggests that an artificial intelligence (AI) tool can differentiate between the voices of people with and without PTSD with almost 90% accuracy, reports NYU Langone Health.

For the assessment, scientists used a statistical machine learning technique known as random forests, which can learn how to classify individuals based on examples. Researchers fed recordings from standard hours-long diagnostic interviews of 53 veterans with PTSD related to their military service and 78 veterans without the condition into voice software that generated a total of 40,526 speech-based features captured in short spurts of talk.

The program linked patterns of specific features found in the voices of individuals with PTSD, such as unclear speech and a lifeless, metallic-sounding tone, both of which are well-established signs of PTSD that help doctors diagnose the condition.

Experts believe that traumatic events can cause changes in the brain circuits that process emotion and muscle tone, which in turn affect voice.

"Speech is an attractive candidate for use in an automated diagnostic system, perhaps as part of a future PTSD smartphone app, because it can be measured cheaply, remotely and non-intrusively." said Adam D. Brown, PsyD, an adjunct professor in the department of psychiatry at New York University School of Medicine and the lead author of the study.

Next, researchers plan to train the AI voice tool with more data in order to use it on an independent sample to demonstrate its effectiveness, after which they will apply for government approval to use the tool in clinical settings.

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