

BRAIN FINGERPRINT TECHNOLOGY

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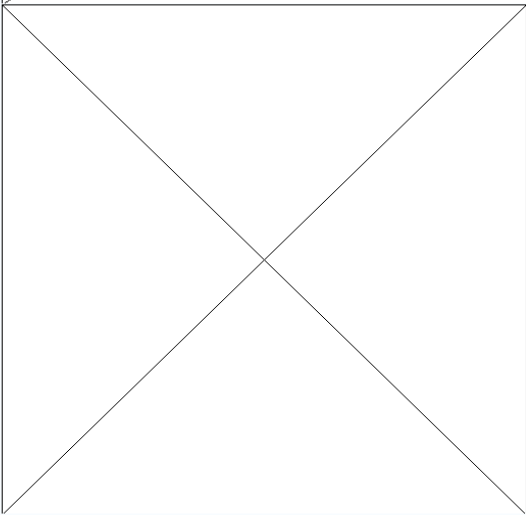
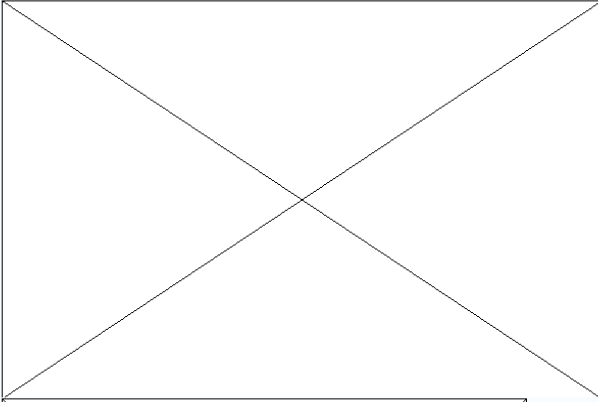
CONTENTS

- **Abstract**
- **Definition**
- **Background and Terminology**
- **How it Works**
- **Benefits**
- **Conclusion**

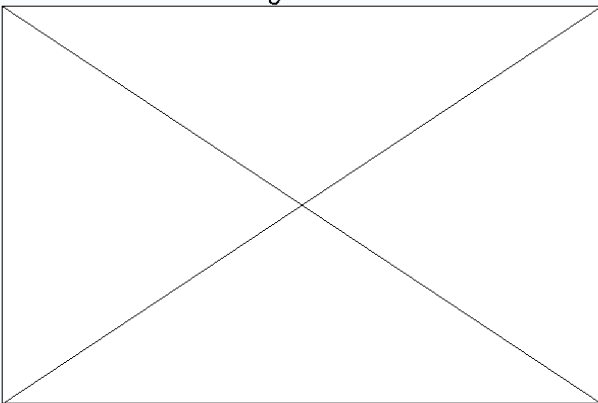
Abstract

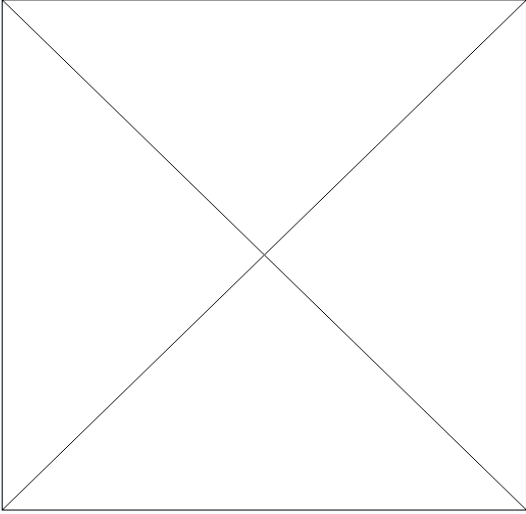
Brain fingerprinting is a technique that measures recognition of familiar stimuli by measuring electrical [brain wave](#) responses to words, phrases, or pictures that are presented on a computer screen. Brain fingerprinting was invented by Dr. [Lawrence Farwell](#). The theory is that the suspect's reaction to the details of an event or activity will reflect if the suspect had prior knowledge of the event or activity. This test uses the [Memory and Encoding Related Multifaceted Electroencephalographic Response](#) to detect familiarity reaction. The person to be tested wears a special headband with electronic sensors that measure the [EEG](#) from several locations on the scalp. In order to calibrate the brain fingerprinting system, the testee is presented with a series of irrelevant stimuli, words, and pictures, and a series of relevant stimuli, words, and pictures. The test subject's brain response to these two different types of stimuli allow the testor to determine if the measured brain responses to test stimuli, called probes, are more similar to the relevant or irrelevant responses.

Brain fingerprinting uses electrical brain responses to detect the presence or absence of information stored in the brain. Because it depends only on information stored in the brain and cognitive brain responses, brain fingerprinting does not depend on the emotions of the subject, nor is it affected by emotional responses. Brain fingerprinting is fundamentally different from the [polygraph](#) (lie-detector), which measures emotion-based physiological signals such as heart rate, sweating, and blood pressure. Also, unlike polygraph testing, it does not attempt to determine whether or not the subject is lying or telling the truth. Rather, it measures the subject's brain response to relevant words, phrases, or pictures to detect whether or not the relevant information is stored in the subject's brain.



Dr. Lawrence Farwell conducts a Brain Fingerprinting test on serial killer JB Grinder. The result showed that the record in Grinder's brain matched the murder of Julie Helton. Grinder was convicted and is serving a life sentence.





Dr. Lawrence Farwell conducts a Brain Fingerprinting test on Terry Harrington. The result showed that the record in Harrington's brain did not match the murder for which he had served 23 years of a life sentence. Harrington was released on constitutional rights grounds.

Definition

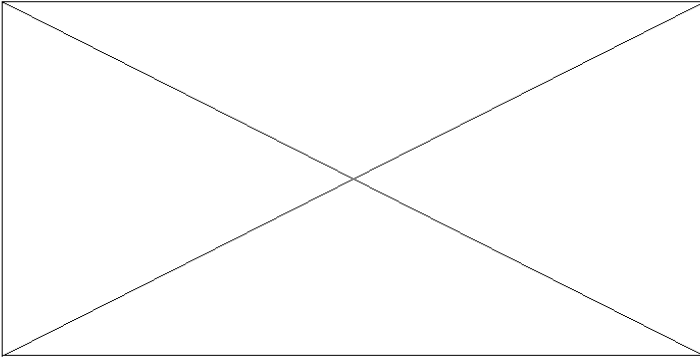
Brain fingerprinting is a controversial technique that is advocated as a way to identify a terrorist or other dangerous person by measuring the "brainprint" of that person when shown a particular body of writing or an image that was previously familiar (such as of a training camp or manual). The brainprint is based on the P300 complex, a series of well-known brainwave components that can be measured. The technique is said to be more effective than a lie detector test.

In the test, the subject is fitted with a patented headband equipped with sensors and shown a series of relevant words or pictures on a computer screen. When the brain recognizes something familiar, the brain elicits a wavelike response known as a MERMER (memory and encoding-related multifaceted electroencephalographic response). The MERMER in turn contains the brain response known as a P300. The test can be done in as little as 10 minutes.

Background and terminology

"Brain fingerprinting" is a computer-based test that is designed to discover, document, and provide evidence of guilty knowledge regarding crimes, and identify members of dormant terrorist cells. It has also been used to evaluate brain functioning as a means of early detection of Alzheimer's and other cognitively degenerative diseases, and to evaluate the effectiveness of advertising by measuring brain responses. This paper describes a test of brain fingerprinting, a technology based on [EEG](#) that is purported to be able to detect the existence of prior knowledge or memory in the brain. The P300 occurs when the tested subject is presented with a rarely occurring stimulus that they feel is significant. When an irrelevant stimulus is presented, a P300 is not expected to occur. The MERMER includes the P300 and also includes an electrically negative component, maximal at the midline frontal area, with an onset latency of approximately 800-1200ms.

How it Works



1. A patented new technique of proven accuracy in US government tests

Dr. Lawrence A. Farwell has invented, developed, proven, and patented the technique of Farwell Brain Fingerprinting, a new computer-based technology to identify the perpetrator of a crime accurately and scientifically by measuring brain-wave responses to crime-relevant words or pictures presented on a computer screen. Farwell Brain Fingerprinting has proven 100% accurate in over 120 tests, including tests on FBI agents, tests for a US intelligence agency and for the US Navy, and tests on real-life situations including actual crimes.

2. Brain Fingerprinting catches a serial killer

On August 5, 1999 Dr. Farwell used Brain Fingerprinting to prove that suspected serial killer James B. Grinder had raped and murdered Julie Helton 15 years earlier. Faced with an almost certain conviction and probable death sentence, Grinder pleaded guilty one week later in exchange for a sentence of life in prison without parole. He is currently serving that sentence, and has confessed to several other murders of young women.

3. Scientific detection of the record of the crime in the perpetrator's brain

Farwell Brain Fingerprinting is based on the principle that the brain is central to all human acts. In a criminal act, there may or may not be many kinds of peripheral evidence, but the brain is always there, planning, executing, and recording the crime. The fundamental difference between a perpetrator and a falsely accused, innocent person is that the perpetrator, having committed the crime, has the details of the crime stored in his brain, and the innocent suspect does not. This is what Farwell Brain Fingerprinting detects scientifically.

4. Matching evidence from a crime scene with evidence on the perpetrator

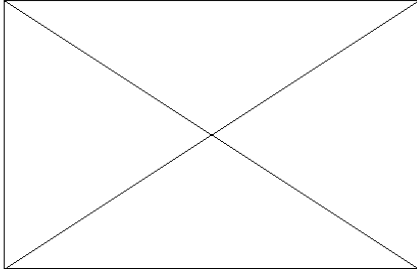
Farwell Brain Fingerprinting matches evidence from a crime scene with evidence stored in the brain of the perpetrator, similarly to the way conventional fingerprinting matches fingerprints at the crime scene with the fingers of the perpetrator, and DNA fingerprinting matches biological samples from the crime scene with the DNA in the body of the perpetrator.

5. How Brain Fingerprinting works

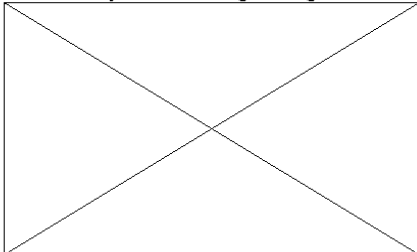
Farwell Brain Fingerprinting works as follows. Words or pictures relevant to a crime are flashed on a computer screen, along with other, irrelevant words or pictures. Electrical brain responses are measured non-invasively through a patented headband equipped with sensors. Dr. Farwell has discovered that a specific brain-wave response called a MERMER (memory and encoding related multifaceted electroencephalographic response) is elicited when the brain processes noteworthy information it recognizes. Thus, when details of the crime that only the perpetrator would know are presented, a MERMER is emitted by the brain of a perpetrator, but not by the brain of an innocent suspect. In Farwell Brain Fingerprinting, a computer analyzes the brain response to detect the

MERMER, and thus determines scientifically whether or not the specific crime- When someone commits a crime, his brain records it has a memory.

Brain Fingerprinting seeks to reveal that memory, by showing the suspect evidence taken from the crime scene. A head band with sensors is placed on the subject. A series of pictures or words is flashed on the screen.



The computer records the brain waves produced in response to what the subject sees. The responses are recorded as a wave form. By analyzing the pattern of waves, Farwell can determine if the subject is recognizing what he is seeing.



Dr. Farwell: *"So when you have a situation where a crime has been committed, and there are certain details only the suspect with know, then we can test: does this brain have these details stored in it? If so, then the suspect committed the crime. If not, then not."*

When the subject sees anything on the screen it creates a pattern of brain activity. A MERMER is increased brain activity produced when the subject recognizes what he is seeing to. The test participants who did not work for the FBI did not recognize the specific FBI stimuli. So no MERMERs were detected.

Researchers with the United States Navy also heard the claims made about the system. They devised a test of their own to see if Brain Fingerprinting could distinguish military medical students from civilians. They used a list of acronyms specific to medicine and the military. Lt. Cmdr. Rene Hernandez conducted the test.

7. Comparison with other technologies

Conventional fingerprinting and DNA match physical evidence from a crime scene with evidence on the person of the perpetrator. Similarly, Brain Fingerprinting matches informational evidence from the crime scene with evidence stored in the brain. Fingerprints and DNA are available in only 1% of crimes. The brain is always there, planning, executing, and recording the suspect's actions. Brain Fingerprinting has nothing to do with lie detection. Rather, it is a scientific way to determine if someone has committed a specific crime or other act. No questions are asked and no answers are given during Farwell Brain Fingerprinting. As with DNA and fingerprints, the results are the same whether the person has lied or told the truth at any time.

Benefits of Farwell Brain Fingerprinting.

- Identify crime perpetrators quickly and scientifically;
- Record of 100% accuracy;

- Confirm innocence, clear the falsely accused, and the falsely convicted;
- Provide immediate *Scientific Result: Information Present* or *Information Absent*. Provide the accused and the investigators with an accurate, conclusive *Scientific Result: Information Present* or *Information Absent*, i.e., the crime-relevant information is or is not stored in the brain of the suspect, within a few hours (same day).
- Identify terrorists and members of gangs, criminal and intelligence organizations;
- Reduce expenditure of money and other resources in law enforcement. Significantly decrease the high cost in time, money, human and materials resources normally associated with criminal investigations, by quickly and accurately identifying the perpetrator and exonerating innocent suspects.
- Increase the number of perpetrators identified. Identify an increased number of perpetrators as compared with other scientific and nonscientific methods;

Conclusion

Brain Fingerprinting is a revolutionary new scientific technology for solving crimes, identifying perpetrators, and exonerating innocent suspects, with a record of 100% accuracy in research with US government agencies, actual criminal cases, and other applications. The technology fulfills an urgent need for governments, law enforcement agencies, corporations, investigators, crime victims, and falsely accused, innocent suspects.