

Brain fingerprint technology

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Abstract—Brain Fingerprinting is a new machine-based technology developed to accurately and objectively recognize the victim of a crime by examining Brainwave exposure to keywords or criminal offense-related visuals on the touchscreen display. Brain fingerprinting is intended to discover that the brain generates a similar brain wave sequence when a human receives a recognizable stimulus by using Stable interference scanning stimulation to identify lies. Evidence shows that people asked to lie provide Diverse cognitive function variations than they do when they are actual.

I. INTRODUCTION

Brain fingerprinting could be a controversy suggested forensic technology which tracks the perception of recognizable signals by analyzing the response of electrical brainwaves to terms, expressions or objects depicted on a computer monitor. the thought is that if the defendant had advance knowledge of the event or incident, the reaction of the suspect to the specifics of an incident or activity would represent. one among the applications is lie detection. This device is predicted to be the most effective possible polygraph as of date which is claimed to detect smooth defendants that pass the polygraph confidently (the traditional polygraph test).Brain-fingerprinting is intended to spot whether an entity detects specific data relevant to an incident or occurrence by evaluating the response of electromagnetic brainwaves to terms, phrases or images displayed on a monitor. Dr. Lawrence Farewell, used this approach in 1992. The Doctorate corporatized a criminal offense intervention technique strongly linked to the analysis of fabrication, which he named "Farewell brain fingerprinting.

II. OBJECTIVES

1. The person being checked wears a special headband with electronic sensors evaluating the electroencephalography on the scalp from several positions.

2. In order to calibrate this brain fingerprinting system, several range of unrelated sensations, definitions as well as photographs and therefore a set of appropriate impulses, letters including stock photos are introduced to tester.
3. The brain reaction of the test subject towards such 2 separate forms of stimulus helps each checker to evaluate whether the memory behaviors evaluated for reinforcement or interceptors have been more comparable to appropriate as well as unrelatable answer.
4. Brain fingerprinting utilizes verbal nervous system reactions, central nervous system authentication will not rely along the victim's feelings, but rather to influence physical reactions.
5. memory fingerprints vary fundamentally from the lie-detector which evaluates physiological signals rested on emotions, for example pulse rate, sweating and diastolic pressure. Neither it avoids to regulate certainly or not a person was dishonest nor revealing his facts unlike polygraph testing.

III. HARDWARE AND SOFTWARE REQUIREMENTS

1. Personal computers.
2. Pictorial device for running dual displays with single Machine.
3. Headband with sensors.
4. EEG impedance paradigm with 4 channel system.
5. Brain fingerprinting research centers established specific technology for processing of data.

Working

When a crime is committed, a record is preserved in victim's head. Relevant words, pictures and sounds are predicted by the computer.

IV. LITERACY REVIEW

1. Psychological profile of child sexual abusers

Clinically, criminals who assault children sexually suffer from a psychiatric disorder called "pedophilia" They are passive, manipulative, hostile and lack social competencies. We are searching for victims who are under paid, neglect parental support financially and are under the influence of drugs. We are engaged in sexual intercourse and become a part of sex racketing. It is found that only in day-care centers, females are likely to molest the child while males are likely to harass the infant at a the working environment. In a survey done, it has been found whether Thirteen % of female children were harassed by criminals whereas 17 percent of male children were abused by females as well as by male (Tingle et al, 1986). Such criminals threaten the child with harm to members of his / her family or ruin his / her public views.

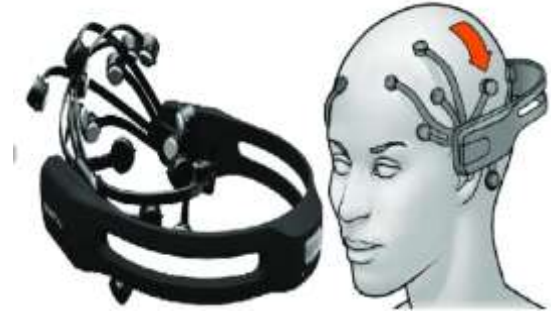
2. The Use of Psychological Tests in Crime Investigation

The psychological evaluation attempts to determine the inherent psychopathology and the perp's behavior that is believed to be a felony. This provides an example of the accused's schizoid personality disorder, aberrant conduct and other psychological factors that can instigate the individual to crime.

V. COMPONENTS

A. EEG

- Electroencephalography(EEG) is the electrical activity which is registered along the scalp.
- EEG tests voltage changes induced by stimulation of brain nerves.
- The electrical activity that is recorded along the scalp is electroencephalography (EEG).
- EEG monitors voltage variations that are caused by brain nerve stimulation.
- EEG is a type of electrophysiological analysis intended to capture brain electrical activity. It is usually non-invasive, with the electrodes mounted on the corset , but sometimes intrusive electrodes are used.



B. MERMER

- It is a function of the observable brainwave approach to information pertaining to the investigative scenario. When the brain identifies any incident, neurons stimulated that signifies changes in brain function. When a person is exposed to information, neuron activation decreases, resulting an rise in capacity.
- Usually between 300-1000msec following strokes. This reaction with voltage rise is known as P. However, P300 has a success rate of only 87.5 percent indicating the existence of pertinent knowledge in the visual cortex of a person.
- The farewell check focuses on the revelation in which the P was a subcomponent of this complex solution that was called MERGER.

C. MERGER METHODOLOGY

It incorporates following procedures:

- A series of sentences, statements or images is projected on the subject's projector with a specialized headband designed to track brainwave responds.

Three types of stimuli—

1. Goal.
2. Insignificant
3. Investigate.

GOAL – it is sensations offered to the subject just before they take the test because we have either to better ensure that it does indeed these triggers are identified to the subject. Certain ' targets ' are descriptions of the crime we are asking the victim.

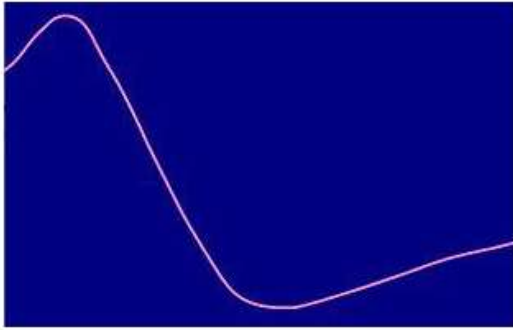


Figure 1. The red line is the P300 Response Emitted to Targets

INSIGNIFICANT - Such triggers are terms or pictures meaningless to the person: they are rewards that nothing to take the crime. These are things he doesn't or won't find important. They provide a baseline for knowledge that the subject does not learn, and thus act as feedback triggers for the no answer waves of P300.

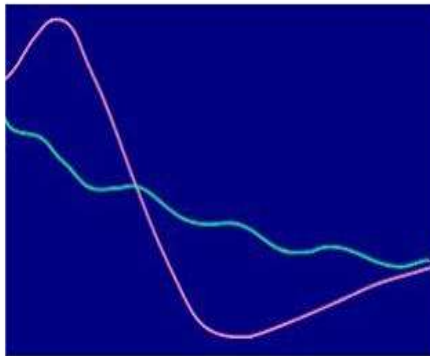


Figure 2. The Non-P300 Brain Wave Response to Irrelevant Information (green)

INVESTIGATE - These are the experimental items: In a case where a crime was committed, there are objects that would only be revealed to the person who committed the crime. If he was not on the ground the crime, the individual would have no way of knowing the objects. We can see if those information are preserved in the memory of the defendant.

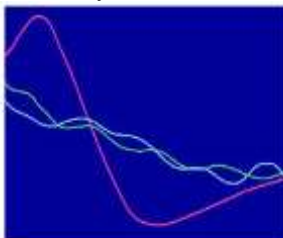


Figure 3. 'Information Assort'

USING BRAIN WAVES TO DETECT GUILT

Brain fingerprinting uses brain waves to test memory. A crime suspect is given words or images in a context that would be known only to police or the person who committed the crime.

HOW IT WORKS
A suspect is tested by looking at three kinds of information represented by different colored lines:

- Red: Information the suspect is expected to know.
- Green: Information not known to suspect.
- Blue: Information of the crime that only perpetrator would

NOT GUILTY
Because the blue and green lines closely correlate, suspect does not have critical knowledge of the crime.

GUILTY
Because the blue and red lines closely correlate, suspect has critical knowledge of the crime.

For more information see: www.brainwavescience.com SEATTLE POST-INTELLIGENCER

VI. RESULT

The exceptionally high degree of accuracy and overall efficacy of Brain Fingerprinting is confirmed by experimental experiments, field research, and actual criminal cases involving more than 120 individuals reported in numerous scientific publications and technical reports. In all trials, field experiments, the device had 100 per cent correct experimental findings. The assessment of Mind Biometrics was "data unavailable" for the check on Schweer's murder in either the America., with a statistical confidence of 99.9 percent. The details contained in the brain of Harrington did not lead to the situation in which Harrington went to the crime scene and committed the murder.

VI. APPLICATION AND SOCIAL BENEFITS

- **ANTI- TERROSIST**
Information authentication will attempt to tackle the preceding main issues in the war against intimidate :
 1. Support directly or indirectly assess who has engaged in terrorist acts.
 2. Help in finding qualified attackers with the ability to perform imminent works of terror.
 3. Assistance recognize individuals with banking, finance, or communications expertise or experience, and are affiliated with terrorist teams and activities.
- **CRIMINAL JUSTICE**
Determining who has committed a crime is a vital part of the judicial system. Before the emergence of

Brain Fingerprinting science, there's no clinically based way to discern a crucial distinction.

MEDICAL FIELDS

Mind Authentication is indeed a revolutionary technique all of which will, for the initial, objectively measure that medications influence attention as well as intellectual processing in neurodegenerative disease. First-generation testing proved to be more reliable than other commonly used studies, and could be available commercially in 18-24 months.

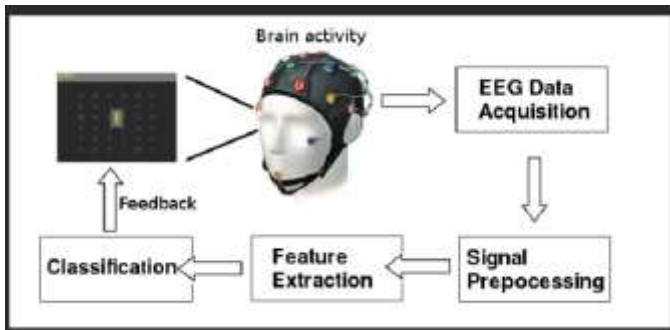
ADVANTAGES

- Reliably and objectively classify the suspect.
- Record of 100% accuracy.
- Recognize criminals and gang members, criminal organizations and resources.
- Reduce spending on funding and other law enforcement services.
- Reduce judicial avoidance.



Fig- the individual is tested using an electronic sensor

ARCHITECTURE DIAGRAM



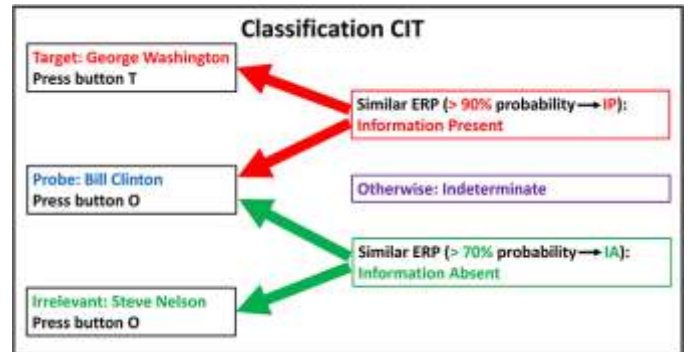
PRELIMINARY RESULT



CONCLUSION

Brain Fingerprinting is a revolutionary new forensic tool to solve crimes, classify criminals and exonerate innocent offenders, with a record of 100% precision of testing for U.S. government departments, Legitimate perpetrator trials. The system addresses an immediate need for states, law Departments of legal framework, businesses, prosecutors, the survivor of crime, and innocent criminals who are falsely accused.

PROTO TYPE / BLOCK DIAGRAM



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