Brain Fingerprinting - White Paper

Challenges and solutions for a safer world

Brain Fingerprinting technology can play a key role in making this world free of crime and criminals and safer to live in. With its unprecedented features and capabilities, Brain Fingerprinting technology is all set to revolutionize the world of law enforcement as we know it.

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Introduction: Brain Fingerprinting

Brain Fingerprinting is a new technology of proven effectiveness in providing evidence to identify criminals and exonerate innocents. It has been patented and published in the leading peer-reviewed journals. It has been proven over 99% accurate in research at the FBI, the CIA, the US Navy, and elsewhere. It has helped to solve real crimes, including helping to catch a serial killer and providing exculpatory evidence for a man falsely convicted of murder. It has been ruled admissible in court in the USA.

Brain Fingerprinting uses electroencephalography (EEG), measured non-invasively through a headset equipped with sensors, to detect concealed information stored in the brain. Brain Fingerprinting has proven to be effective in detecting information regarding specific crimes, and also information that can identify the members of a particular group or organization such as the FBI or people with a specific expertise such as bomb (IED) making.

This report explains how Brain Fingerprinting technology can play a key role successfully performing the mission of every law enforcement agency and national security agency everywhere in the world.

Prioritization and Categorization of Law Enforcement and National Security Challenges

Law enforcement and national security priorities have long been prioritized and categorized since the first classification of felony and misdemeanor crimes.

This prioritization and classification has been necessitated by the need to devote (and request funding for) appropriate manpower and other resources relative to a given agency's needs and to have a simple classification scheme to present/discuss categories of crime.

The classification scheme for crimes will vary with changing times and events, e.g. the 9/11/2001 terrorism in the U.S. as well as with the differing legislated responsibilities of large federal agencies (i.e., the FBI) vs smaller and regionally based regional and local law enforcement agencies.

Top Challenges for Regional and Local Law Enforcement

A typical classification and prioritization scheme for regional and local law enforcement has traditionally been something like the following:

1. Personal Crimes, e.g., Murder, Rape, Assault, Kidnapping, Extortion, etc.
2. Property Crimes, e.g., Arson, Vandalism, Burglary, etc.
3. White Collar Crimes, e.g., Investment and Accounting Fraud, etc.
4. Organized Crime
5. Drug Investigations
6. Victimless Crimes, e.g., Prostitution, Gambling, etc.
7. Cyber Crime
8. Counterterrorism

The prioritization of these types of investigations differs considerably amongst agencies and departments.

The above prioritization of the top challenges in law enforcement is still applicable for most state and local law enforcement agencies in the US and throughout the world. Traditionally, the prioritization of national law enforcement agencies such as the Federal Bureau of Investigation (FBI) in the United States has been fairly similar to that of state and local law enforcement.

Top Challenges for National Law Enforcement

The top challenges for national law enforcement, however, have change dramatically in recent years due to the increase in international terrorism. In the US, the priorities of the FBI have changed substantially since the terrorist attacks of 9/11/2001.

The primary mission of the FBI traditionally was to solve federal crimes, most of which were similar to the crimes addressed by state and local law enforcement. According to the FBI, their most important mission now is to protect the country from terrorist attacks. Protecting the US against cyber-based attacks and high-technology crimes has also become a top challenge for the FBI in recent years. The same is true for national law enforcement agencies throughout the world.

The top challenges for national law enforcement, according to the priorities of the FBI, are as follows

1. Protect the country from terrorist attacks
2. Protect the country against foreign intelligence operations and espionage
3. Protect the country against cyber-based attacks and high-technology crimes
4. Combat public corruption at all levels
5. Protect civil rights
6. Combat transnational and international criminal organizations and enterprises
7. Combat major white-collar crime
8. Combat significant violent crime
9. Support federal, state, local and international partners
10. Upgrade technology to successfully perform the agency's mission.

The challenges to national law enforcement throughout the world are similar to those of the FBI in the US.

Top Challenges for National and Global Security

The top challenges for national and global security are largely embodied in the top two challenges for national law enforcement, protecting the country from terrorist attacks, cyber-based crimes, and high-technology crimes. These can be further elaborated as follows:

1. Protecting the country from terrorist attacks.

a. Identifying those who make and deploy bombs (improvised explosive devices -- IEDs) and bringing them to justice
b. Identifying members of terrorist groups and organizations and bringing them to justice
c. Identifying members of terrorist cells within the country and bringing them to justice
d. Protecting human rights and human dignity: avoiding abusive practices such as torture, and identifying and freeing terrorist suspects who are in fact innocent
e. Identifying high value individuals within a terrorist organization – distinguishing the masterminds from low-level operatives, and focusing the necessary attention on those high value individuals
f. Identifying those who finance terrorist organizations and bringing them to justice
g. Reverse engineering the terrorist network – using social network analysis, link analysis, and other sophisticated analysis techniques to generate hypotheses regarding connections with and among terrorists, determining whether the hypotheses are correct, and bringing the appropriate individuals to justice
h. Detecting terrorist plans before they are implemented, and preventing terrorist crimes

2. Protecting the country against foreign intelligence operations and espionage

a. Identifying foreign intelligence operatives and bringing them to justice
b. Identifying moles, double agents, etc. within the country's intelligence and national security organizations and bringing them to justice
c. Maintaining the integrity of classified intelligence information
d. Distinguishing accurate and reliable intelligence information and acting on it; detecting inaccurate or false intelligence information and not acting on it; distinguishing reliable from unreliable sources

How Brain Fingerprinting Provides Critical Capabilities to Meet the Top Challenges in Law Enforcement and National and Global Security

All or virtually all of the aforementioned crime and national security investigations would be amenable to Brain Fingerprinting examination. Subjects can be tested for salient information known only to the perpetrators of crime or to the members of various criminal/terrorist groups. This is further elaborated below with reference to each of the top challenges in local and regional law enforcement, national law enforcement, and national and global security.

How Brain Fingerprinting Provides Critical Capabilities to Meet the Top Challenges in State and Local Law Enforcement

1. Personal Crimes, e.g., Murder, Rape, Assault, Kidnapping, Extortion, etc.

In each of these types of crimes there may or may not be peripheral evidence. DNA and fingerprints, for example, are available in only about 1% of crimes. The brain of the perpetrator is always there, planning, executing, and recording the crime. In the absence of a videotape of the crime, generally the most comprehensive record of the crime is the information stored in the brains of perpetrators (and sometimes witnesses and victims as well). The fundamental difference between a perpetrator and an innocent suspect is that the perpetrator, having committed the crime, has a record of the crime stored in his brain, and the innocent suspect does not. B rain Fingerprinting scientifically and accurately detects the record of the crime stored in the brain of the perpetrator, or the lack of that record in the brain of an innocent suspect.

2. Property Crimes, e.g., Arson, Vandalism, Burglary, etc.

As with personal crimes, the perpetrators of property crimes know who they are and what they have done. Brain Fingerprinting detects this record stored in the brain.

3. White Collar Crimes, e.g., Investment and accounting fraud, etc.

Often with white collar crimes there is a lack of physical evidence – no blood, fingerprints, footprints, etc. White collar crimes, however, are often very information intensive. The perpetrator knows detailed information about how the crime was committed that an innocent suspect lacks. Brain Fingerprinting can detect this information, providing evidence to help identify the perpetrator and exonerate innocent suspects.

4. Organized Crime

Often the more powerful organized crime figures don't get their own hands dirty actually carrying out the crimes. They avoid being brought to justice by planning the crimes and having their underlings carry them out, so if someone is caught red handed committing the crime, it may be difficult or impossible to connect the crime to the actual instigator of the crime. Witnesses who are aware of the connection can be intimidated or killed. Thus notorious crime bosses can avoid being brought to justice, while committing some of the most egregious crimes. Brain Fingerprinting changes this situation entirely. Criminals who plan and instigate the crime may leave no fingerprints of their own at the scene, but the record of the crime is stored in their brains. Brain Fingerprinting can detect this record and bring to justice major organized crime figures who otherwise might be able to avoid justice indefinitely.

5. Drug Investigations

Like organized crime bosses in general, the higher level drug dealers often avoid direct participation in the activities likely to result in detection or capture. But with Brain Fingerprinting, when they have masterminded the deal, they cannot hide the record stored in their brain.

6. Victimless Crimes, e.g., Prostitution, Gambling, etc.

As with other crimes, the record stored in the brain of the perpetrator can be detected with Brain Fingerprinting.

7. Cyber Crime

Cyber-crimes, like white collar crimes, often can be committed with little or no physical evidence left behind. Large sums of money can be transferred around the world in fractions of a second, and the records wiped clean or falsified to mislead investigators. The more sophisticated the crime, particularly when high technology and sophisticated computer skills are applied, the more information the perpetrator must know in order to plan and commit the crime. This information stored in the brain can be detected by Brain Fingerprinting. In effect, the more impossible a crime becomes to solve by conventional means, the more powerful Brain Fingerprinting becomes as a unique tool to detect the knowledge that identifies the perpetrator.

8. Counterterrorism

This is discussed in the section on National and Global Security below.

How Brain Fingerprinting Provides Critical Capabilities to Meet the Top Challenges in National Law Enforcement

1. Protect the country from terrorist attacks

This is discussed below under National and Global Security.

2. Protect the country against foreign intelligence operations and espionage

This is discussed below under National and Global Security.

3. Protect the country against cyber-based attacks and high-technology crimes

As discussed above, cyber-based attacks and high-technology crimes are highly information intensive. The same sophistication that allows a cyber-terrorist or cyber-criminal to hide his tracks inevitably results in a comprehensive and detailed record of the crime being stored in his brain. With Brain Fingerprinting, covering one's digital tracks is no longer an adequate means to avoid detection. Brain Fingerprinting detects the record of cyber-crime where it cannot be erased: in the brain of the perpetrator. Like any forensic science, Brain Fingerprinting must be used in conjunction with effective investigative techniques to identify potential suspects, along with effective law enforcement techniques to apprehend those suspects so they can be tested and ultimately brought to justice.

4. Combat public corruption at all levels

The public and investigators may have a difficult time distinguishing between corrupt individuals in public life and honest people who have enemies who make false accusations. Corrupt politicians and others in public life, however, know who they are, and they know what they have done. Brain Fingerprinting can detect the record of crimes of corruption in the brain of the perpetrator, and can also exonerate honest people who have been falsely accused for political gain (or any other reason).

5. Protect civil rights

Brain Fingerprinting protects civil rights in several ways. First of all, with Brain Fingerprinting available, any innocent suspect can say, "I didn't commit the crime. I was not involved. I know nothing about it. Don't tell me about the crime. Give me a Brain Fingerprinting test, and I'll prove I don't know anything about it." Brain Fingerprinting can provide a means for authorities to exonerate innocent suspects early in the investigation, so that resources can be devoted to catching the actual perpetrators. Moreover, subjects' civil rights are protected during a Brain Fingerprinting test. Brain Fingerprinting is non-invasive, non-stressful, and non-testimonial. No questions are asked or answered during a Brain Fingerprinting test. A subject simply observes words, phrases, or pictures on a computer screen and pushes buttons in response while his brainwaves are being measured. Subjects in a Brain Fingerprinting test are not subjected to any kind of physical or emotional duress. Brain Fingerprinting makes abusive interrogation practices obsolete by providing a humane way for authorities to discover the truth.

6. Combat transnational and international criminal organizations and enterprises

Key players in transnational and international criminal organizations and enterprises, like organized crime figures discussed above, often avoid detection by planning crimes and then having others carry out the crimes and take the associated physical and legal risks. The higher an individual is in such an organization, the less likely they are to actually physically carry out the crimes that bring them their profits. They also often have the power to intimidate or kill witnesses who know of their involvement in crimes. These factors make high-level international criminals difficult to bring to justice by conventional means. In order to plan their crimes and run their organizations effectively, however, such high-level individuals must know in depth and detail about the criminal activities they plan and instigate. This knowledge is a strength for and a necessity for running their criminal organizations, and at the same time it is a critical vulnerability when Brain Fingerprinting is involved. They may cover their tracks and eliminate anyone who knows the truth, but the record of their crimes is still stored in their brains. Brain Fingerprinting can detect that record and bring otherwise untouchable criminals to justice.

7. Combat major white-collar crime

White-collar crime, like international crime and cyber-crime, is highly information intensive for the perpetrator, and yet tends to leave little in the way of physical clues. To commit sophisticated white-collar crimes with any possibility of success and get rid of any externally detectible traces, the criminal has to know what he is doing with a high level of detail and sophistication. This means is that there is a comprehensive record of his crimes stored in the white-collar criminal's brain. Brain Fingerprinting detects that record scientifically and objectively, providing evidence to bring to justice white-collar criminals who might otherwise avoid detection entirely.

8. Combat significant violent crime

There may or may not be physical evidence, witnesses, or surviving victims of significant violent crimes. Perpetrators of significant violent crime, however, know who they are, and they know what they have done. That record is stored in their brains. Brain Fingerprinting can detect the record of the crime stored in the brain, and provide evidence to bring the perpetrator to justice.

9. Support federal, state, local and international partners

This can be done in many ways. One way is to share information on new, effective, proven technologies like Brain Fingerprinting and to help to make such technologies more widely available.

10. Upgrade technology to successfully perform the agency's mission.

Brain Fingerprinting is a new technology of proven effectiveness in providing evidence to identify criminals and exonerate innocents. It has been patented and published in the leading peer-reviewed journals. It has been proven over 99% accurate in research at the FBI, the CIA, the US Navy, and elsewhere. It has helped to solve real crimes, including helping to catch a serial killer and providing exculpatory evidence for a man falsely convicted of murder. It has been ruled admissible in court in the USA. Brain Fingerprinting technology can play a key role in upgrading technology to successfully perform the mission of any law enforcement agency anywhere in the world.

How Brain Fingerprinting Provides Critical Capabilities to Meet the Top Challenges in National and Global Security

New developments in technology have always played a major role in national and international conflicts. If the Germans or the Japanese had developed the atomic bomb before the Americans did, the world would be a very different place today. In the past, however, technological developments have largely focused on firepower. From the longbow to the atomic bomb, the side with superior firepower generally won the battle. Today in the field of national security, we face an unprecedented challenge. In past wars firepower was decisive because it was easy to distinguish who our enemies were. If all the terrorists in the world wore uniforms and lined up behind battle lines as in past conflicts, the battle would be over almost instantaneously. We have many times more firepower than

would be needed to win an open battle. Today, however, even vastly superior firepower is no longer enough. This is because the terrorists blend in with the local population.

A terrorist at 10:30 AM

The same terrorist at 11:45 AM

The critical factor in national security today is no longer firepower, but rather information. The critical task is to identify the terrorists accurately, and to distinguish terrorists from the innocent civilians with whom they mingle.

Fortunately, it is not the case that "No one knows who the terrorists are." The terrorists know who they, and they know what they have done and what they plan to do. This information is stored in their brains. If the terrorists carried this information around in laptop computers, it would be easy to identify all the terrorists by scanning their computers, and bring them to justice immediately. Since they carry the incriminating information in their brains, however, new technology is needed to detect this information and accurately detect who the terrorists are.

Brain Fingerprinting is a new technology that addresses this critical need in national and global security. Brain Fingerprinting accurately and scientifically detects the record of terrorist training, crimes, and planning stored in the brain of the terrorist. It also provides an accurate way to exonerate innocents. Moreover, Brain Fingerprinting protects human rights and makes torture abusive practices obsolete by providing a humane, non-invasive means to discover the truth.

The new world situation demands new technology to address the unprecedented challenges in national and global security. Brain Fingerprinting provides a proven, effective method to accomplish one of the most critical tasks facing the civilized world: identifying terrorists and distinguishing them from innocents.

Brain Fingerprinting addresses the specific challenges in national and global security as follows.

1. Protecting the country from terrorist attacks.

    a. Identifying members of terrorist groups and organizations and bringing them to justice

Research at the CIA, the FBI, and the US Navy has shown that Brain Fingerprinting can detect knowledge unique to members of a particular group or organization. Brain Fingerprinting proved over 99% accurate in detecting FBI agents and US Navy military medical experts based on the unique knowledge they possess.

    b. Identifying those who make and deploy bombs (improvised explosive devices -- IEDs) and bringing them to justice

Brain Fingerprinting has proven to be over 99% accurate in detecting bomb makers (IED experts) by detecting the record of IED-related knowledge stored in their brains.

    c. Identifying members of terrorist cells within the country and bringing them to justice

Members of a specific terrorist cell have specific inside knowledge of the people, criminal activities, operational methods, codes, etc. of the cell. Innocents who may associate with the cell members lack this knowledge. Brain Fingerprinting can detect this incriminating information stored in the brain of a terrorist, or lack of the information store in the brain of an innocent person.

d. Protecting human rights and human dignity: avoiding abusive practices such as torture, and identifying and freeing terrorist suspects who are in fact innocent

Brain Fingerprinting is non-invasive and non-stressful. It provides an accurate method of detecting the truth without resorting to torture or other abusive practices that not only violate human rights but also are generally ineffective in discovering the truth. It provides an effective means to exonerate innocents who may have been apprehended as suspected terrorists by being in the wrong place at the wrong time, or may have been falsely accused of terrorism by their enemies.

e. Identifying high value individuals within a terrorist organization – distinguishing the masterminds from low-level operatives, and focusing the necessary attention on those high value individuals

Even among known terrorists, there are important distinctions that can be detected by Brain Fingerprinting. High-level terrorist operatives have knowledge that low-level people in the same organization lack. Bran Fingerprinting can detect the information stored in the brain that identifies a person of high intelligence value due to his substantial role in the terrorist organization.

f. Identifying those who finance terrorist organizations and bringing them to justice

Terrorist financiers play a major role in terrorist crimes, but often avoid detection because they do not participate directly. They do, however, know who they are and what they have done. Brain Fingerprinting can detect the specific knowledge and terrorist connections based on the record stored in the brains of those who finance terrorism but do not directly participate.

g. Reverse engineering the terrorist network – using social network analysis, link analysis, and other sophisticated analysis techniques to generate hypotheses regarding connections with and among terrorists, determining whether the hypotheses are correct, and bringing the appropriate individuals to justice

Sophisticated social analysis techniques have been developed to attempt to reverse engineer the terrorist network. Such techniques analyze known data on individuals, connections between people, places, events, and operations to generate hypotheses regarding the role (or lack of a role) of particular individuals in a terrorist network. Brain Fingerprinting provides an objective, scientific way to test these hypotheses and determine if they are in fact true. Use in conjunction with other sophisticated techniques, Brain Fingerprinting can provide a key element in reverse engineering the terrorist network.

h. Detecting terrorist plans before they are implemented, and preventing terrorist crimes

Terrorists know who they are and what they have done. They also know details regarding crimes that they have planned but not yet perpetrated. For example, authorities may have a known terrorist in in custody and suspect that he is part of a plot to bomb a particular building of national importance. Authorities do not know which building or which of the terrorists associates will carry out the crime, but the terrorist does know. Brain Fingerprinting can detect this information and help to prevent a terrorist crime that has not been perpetrated.

2. Protecting the country against foreign intelligence operations and espionage

a. Identifying foreign intelligence operatives and bringing them to justice

Research at the FBI, the CIA, and the US Navy has proven that Brain Fingerprinting can detect knowledge unique to the members of a particular organization or group. Brain Fingerprinting proved over 99% accurate in detecting knowledge unique to FBI agents and UN Navy military medical experts. Similarly, intelligence operatives for a particular agency have extensive, unique knowledge that is not known to the public. Brain Fingerprinting can detect this knowledge and help to identify foreign intelligence operatives and exonerate innocents.

b. Identifying moles, double agents, etc. within the country's intelligence and national security organizations and bringing them to justice

Double agents and moles within our intelligence and national security organizations are privy to specific information involved in their unauthorized contact with foreign intelligence agencies – communication procedures, code words, contacts, etc. Brain Fingerprinting can detect the record of this information stored in the brain.

c. Maintaining the integrity of classified intelligence information

Highly classified information is compartmentalized so that even among individuals with high security clearances only authorized persons have access to information on specific operations, people, technology, procedures, etc. Individuals who are following the procedures designed to protect the integrity of classified information know only what they are authorized to know. Individuals engaged in espionage often attempt to discover information that goes outside of their authorized knowledge. Brain Fingerprinting can detect unauthorized, classified knowledge and identify individuals who have not maintained the integrity of the compartmentalized system.

d. Distinguishing accurate and reliable intelligence information and acting on it; detecting inaccurate or false intelligence information and not acting on it; distinguishing reliable from unreliable sources

Evaluating the reliability of intelligence information and intelligence sources is critical to the successful operation of intelligence agencies. Brain Fingerprinting can detect information stored in the brain that can help to determine whether an intelligence asset really is who he says he is, and whether he is the kind of person he says he is. It can also detect incriminating information or information contradictory to what a source is representing to our intelligence operatives.