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## Original Research Article

### Neuroscientific Evidence in Court: Evaluating Brain Fingerprinting in Indian Judiciary

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#### Abstract

**Introduction:** Brain fingerprinting, a neurotechnology, determines whether a person knows the relevant facts by examining their brainwave patterns. This novel technique is increasingly being dealt with discussions on its possible application in forensic analysis, criminal investigations, and Court proceedings. **Objective:** The article analyses the scientific, legal, and ethical aspects of brain fingerprinting in India, including its admissibility as evidence, compatibility with constitutional rights, and its judicial perspective. **Methodology:** This review study critically appraises available neuroscientific literature, legal precedents and ethical theories to determine the possibility and limitations of using brain fingerprint evidence within the Courtroom. **Results & Discussion:** Although brain fingerprinting appears to be a promising tool for improving the accuracy in forensic cases, it poses significant concerns related to privacy, self-incrimination, due process and false conviction rates. Judicial review, constitutional protections and scientific validation will remain the primary considerations in determining its admissibility. **Conclusion:** Brain fingerprint analysis may transform crime solving under proper regulation, but its application must balance scientific possibilities and constitutionally protected freedoms to prevent it from being misused, coerced, or subjected to surveillance. India should be careful in embracing this technology and establish strong legal and ethical controls over its use.

#### 1. Introduction

Imagine a reality in which the human brain has become the ultimate witness, wherein investigators no longer depend on confessions, eyewitness testimony or circumstantial evidence

but instead peer directly into a suspect's mind to ascertain guilt or innocence. This formerly unimaginable situation is now a topic of serious legal and scientific debate, courtesy of brain

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fingerprinting, a forensic technique that purports to reveal whether or not an individual's brain recognises information related to a crime or crime scene.<sup>1</sup> Unlike most traditional lie detectors, which measure physiological changes like heart rate or sweating, this technique looks at involuntary electrical impulses in the film of the brain, with the theory that it is more objective and harder to manipulate.<sup>2</sup>

However, the technology's use in criminal trials poses difficult questions despite its potential for forensic scrutiny. Does brain fingerprinting really expose concealed information, or do experts merely suggest that knowledge of specific facts simply exists? Are Courts right to consider brainwave responses as working evidence, or does this cross an ethical line into thought policing? Second, is the compelled brain fingerprinting of an accused violative of his most basic rights, such as the protection against self-incrimination and right to privacy under the provisions of the Indian Constitution? The justice system has always been reticent about incorporating new methods of science, especially ones that delve into personal autonomy and cognitive freedom. History has shown that excessive reliance on forensic techniques, such as unreliable lie detector tests, flawed interpretations of DNA or forensic hypnosis, has occasionally resulted in wrongful convictions.<sup>3</sup> Even brain fingerprinting, with its technological promise, is not free from similar scorn.

Brain fingerprinting was introduced in the U.S. in the 1990s by Dr Lawrence Farwell and subsequently in India in high-profile criminal investigations in the early 2000s. In India, the judiciary has wrestled with the admissibility of neuroscience-based forensic tools. The landmark ruling in *Selvi v. State of Karnataka* (2010) 7 SCC 263, had declared narcoanalysis, polygraph tests and brain-mapping unconstitutional if carried out without the consent of the accused. This ruling established the principle that mental privacy is at least as sacred as physical privacy.<sup>4</sup> Yet, brain fingerprinting poses a specific problem as the test is passive (as opposed to a suspect's active participation); should it still be perceived as a fundamental infringement? Is it possible to treat it as forensic evidence, or does it fall instead into the category of unreliable, pseudo-scientific techniques? Brain fingerprinting, in this scenario, is one of the most disputable forensic tools in India. While traditional forensic techniques, such as examining the body or the crime scene, work on the physical level,

brain fingerprinting gets hold of the mind itself, thus not only questioning the guarantees under Article 20(3) against self-incrimination and Article 21 on privacy and dignity, but also changing the paradigm. The present article is, therefore, committed to three things in particular: the first one is to check the legal position of brain fingerprinting as evidence in Indian criminal trials; the second is to analyse the compatibility of brain fingerprinting technology with the Indian constitution; and, finally, the third one is to unveil the inherent ethical issues of using the human brain as forensic evidence by critically assessing the same.

## 2. Literature & Background

One aspect of the story about the different ways the brain fingerprinting debate has been handled is the mention of different countries and their judicial systems. It has been observed that Courts in the United States have been quite conservative when it comes to the acceptance of lie detection evidence from neuroscience-technological sources. The case of *United States v. Semrau* is a good example, where functional MRI-based testimony was given no credit due to failure to meet Daubert standards of reliability.<sup>5</sup> On the other hand, in the European Union, the right to privacy and proportionality have been the main points of focus in the debate. At the same time, the scholars regard the issue as one of "cognitive liberty."<sup>6</sup>

The Indian judicial system which is based on the Supreme Court's decision in *Selvi v. State of Karnataka* (2010) 7 SCC 263, has always been very strict in opposing the forced use of neuroscience-based forensic methods; it has also categorically stated that the logic behind it is Article 20(3) and Article 21 of the Constitution. The Law Commission of India in its 185th Report on the Indian Evidence Act (2003)<sup>7</sup>, while emphasising the need for careful scrutiny of novel scientific techniques when admitting them, in its 277th Report on Wrongful Prosecution (Miscarriage of Justice): Legal Remedies (2018)<sup>8</sup> has been much more explicit about how an over-reliance on invalidated forensic methods might lead to wrongful prosecutions. It also recommended establishing statutory frameworks for compensation and judicial safeguards. Then, there is the research in the field of neuroscience, which is clearly a source of great ambiguity. Thus, for instance, P300/MERMER-based methods may just show that a subject has recognised a particular stimulus to which researchers like Rosenfeld and Meijer et al. refer, stating that

these results do not allow for a clear differentiation of the guilty knowledge from the innocently familiar grounds.<sup>9</sup> A comparative engagement with U.S. and EU perspectives outlines the differences and emphasises the necessity of understanding India's position on the same issue. India needs to mentally map its own debate on brain fingerprinting by tracing its route through the global discourse on the topics of experimental reliability, human rights, and constitutional safeguards for the same.

### **3. Legal Admissibility and Judicial Approach in India**

The admissibility of brain fingerprinting as per the Indian legal framework is a question of the technology itself and a holistic assessment with constitutional guarantees, laws, and changing judicial decisions regarding forensic science. The issue is not just about the technology being scientifically valid, but that the use of such neurotechnology is in accordance with the fundamental principles of voluntariness, scientific reliability, corroboration and proportionality.

#### **a. Voluntariness and the Right against Self-Incrimination**

A constitutional barrier is, firstly, a leading element. Article 20(3) of the Constitution is the most explicit provision which protects the accused from any compulsion to give a statement against themselves. In *Selvi v. State of Karnataka* (2010) 7 SCC 263, the Supreme Court decided that interventions like narcoanalysis, polygraphy, and brain-mapping can only take place with the patient's voluntary consent. The ground for the decision was not only to restrict physical coercion, but also to ensure that the person's mental operations were left untouched by force. The Court furthered the concept of "cognitive privacy" in that judgment, acknowledging that forced revealing of the subconscious or unintentional brain reactions is a similar form of coercion as the one where a person is extracted a confession by the use of force. Hence, brain fingerprinting without informed consent would violate the provisions of the constitution. However, even with consent, it raises the question of whether such "consent" can ever be genuine in the case of custodial settings where the presence of psychological pressure is felt. So, voluntariness still remains a debated, weak and insecure guard in reality.

#### **b. Scientific Reliability and Evidentiary Standards**

Sections 3 to 9 of the *Bharatiya Sakshya Adhiniyam, 2023* lay down the criteria that evidence must have relevance and probative value to be

admissible, while under Section 39, expert opinion is welcomed. Nevertheless, the decision to accept is significantly harmed by the reliability of the underlying science, as brain fingerprinting has not by any means reached a standard of scientific acceptance. The main arguments of the opponents of the technique are mainly related to the risk of false positives, in which innocents may recognise crime details as a result of media exposure, and false negatives, in which the guilty are not able to register due to trauma, stress, or memory suppression. The judiciary is also reflecting these concerns.

In, *Santokben Sharmanbhai Jadeja v. State of Gujarat* (2007)<sup>10</sup>, the Gujarat High Court allowed the administration of the narco-analysis, polygraph, and brain-mapping experiments during the inquiry, but definitely stated that the results of such interventions could not be considered as primary or final evidence at trial. The Court had established a distinction between the utility of the investigation and suitability for evidence, arguing that while such methods might be helpful in guiding the detectives, their scientific reliability was not enough to warrant independent probative value in the Court. Since the demand for reliability is not solely related to evidence, it is also associated with the constitutional right to a fair trial under Article 21. A way of working that is uncertain about accuracy cannot be accepted as proof without jeopardising procedural fairness.

#### **c. Corroboration as a Structural Safeguard**

One more judicially recognised principle is corroboration. In *Dinesh Dalmia v. State* (2006)<sup>11</sup>, the Madras High Court clarified that neuroscientific methods could help an investigation but could not make a presumption of guilt. It manifests the wider Indian Court philosophy that no matter how good a forensic innovation is, it cannot replace the traditional safeguards of cross-examination, corroboration by physical evidence, and testing under adversarial scrutiny. That is to say, practically, if brain fingerprinting were allowed, it would just work as partnering evidence, not as standalone proof.

#### **d. Proportionality and Privacy Concerns**

The principle of proportionality is perhaps the least mentioned but the most important one that comes into play over time. In the landmark case, *Justice K.S. Puttaswamy (Retd.) and Anr. vs. Union of India and Ors.*, (2017) 10 SCC 1, the Supreme Court declared the right to privacy as a fundamental right under Article 21 and acknowledged the right to mental privacy. Brain fingerprinting is a method of

investigation that requires one's brain to give a response to questions, which is a direct interference with cognitive liberty. From a standpoint of proportionality, the State should provide a case that such a breach is essential, a minimally restrictive way of achieving the purpose is used, and a substantial public interest justifies the interest. Given the errors in scientific accuracy and the availability of more straightforward forms of investigation, the use of brain fingerprinting will not be the method that reflects this test of the first principle. The opponents, too, are of the opinion that if the Courts were to accept it early, such a decision would be setting a precedent which would lead to broader state access to the private neural processes of individuals, thereby making neuro-surveillance a norm appearing under the cloak of law enforcement.

#### 4. Synthesis of Judicial Approach

When these strands of the synthesis are done, Indian Courts are showing a consistent, albeit very cautious, philosophy towards brain fingerprinting and similar neuroscientific tools:

- Voluntariness is the main issue - There is no room for negotiation. Evidence, which is obtained without real consent, is illegal under the Constitution.
- The scientific reliability is non-negotiable – If invalidated technologies are allowed, they cannot be given without reinstating the integrity of the evidence.
- Corroboration is a condition – If no independent proof supports the neuro evidence, it is not admissible.
- Privacy and proportionality are the main factors – The intrusion into cognitive liberty is the highest constitutional cost that only the most reliable and necessary technologies can justify.

#### 5. Operational Risks: False Positives, False Negatives and Countermeasures

The law not only needs to look at average accuracy claims, but it also needs to consider the error distribution and the practical situations that cause misclassification. A false positive is an error that can occur if an innocent person is unintentionally implicated with crime-relevant information (media reports, casual conversation). In this case, the recognition signal is generated; however, a false negative may be the situation when a guilty person does not register recognition due to factors such as stress, trauma, medication, or intentional countermeasures. Besides, deliberate

countermeasures (mental distraction, rehearsed responses) make the test less valid. Since criminal adjudication requires proof beyond a reasonable doubt, methods that are vulnerable to errors must not be allowed as the decisive link in a chain of evidence.<sup>12</sup> Empirical reviews suggest reining in expectations with regard to the present brain-based memory detection for legal purposes.<sup>13</sup> This tiered strategy is the reason why the Indian judiciary has been consistent in clearly stating that brain fingerprinting shall not be treated as conclusive evidence. This line of thought is actually far from their position. Such judicial caution is their principled commitment to due process over technological expediency. Brain fingerprinting will only be used as an investigative aid until the science matures and the legal framework explicitly regulates its scope, not as a determinative evidentiary tool.

#### 6. Ethical and Social Concerns

The controversy surrounding the use of brain fingerprinting requires us to consider its potential for good and the very real ethical and social dangers it entails. The supporters refer to pilot studies under control, like those in New Zealand, which indicate the possible employment of brain fingerprinting in investigations if used as a corroborative tool.<sup>14</sup> At the same time, well-known bioethicists such as Prof. Nita Farahany go to the length of asserting that the right to cognitive liberty is indeed their core, and hence, people have to be the ones who decide if their minds are accessed.<sup>15</sup> This area of human rights is just opening up, and if forced neurotechnology becomes normal, we will face a new challenge.<sup>16</sup>

Nevertheless, the science behind the technology is still not conclusive. Some sceptics, who are neuroprivacy contributors, maintain that brain fingerprinting continues to be a highly disputable scientific method. It is still quite open to errors of false positives (i.e., the recognition of a fact resulting from reading the media) and false negatives (due to stress, trauma, or when applying countermeasures) that can easily creep into the experiment.<sup>17</sup> In the case of *Rojo George v. Deputy Superintendent of Police (2006)*<sup>18</sup>, the High Court ruled that the use of narco-analysis and similar neuroscience tests for the investigation is allowed, if the administration of such tests is done correctly, they do not violate the accused's constitutional rights against self-incrimination and personal liberty. The Court reiterated that these tests' results cannot be used as substantive evidence in a trial only if the role of

investigative aids and their admissibility in the Court are correctly distinguished.<sup>19</sup> At this moment, those worries about the broader misuse of these technologies, the area outside of the criminal justice system, are now a reality. Thus, the main problems with these technologies are the new laws being developed and implemented. For example, in Chile, a significant step has been taken toward ensuring the protection of neuro rights, and the country's Supreme Court recently made a decision that set a precedent regarding the use of neurotechnology devices by removing the commercial aspect from the Emotiv Insight case because it violated these rights.<sup>20</sup>

These events show a serious challenge at the core of brain fingerprinting. This technology can greatly help the police in cases where people consent and the tests have been reliably carried out.<sup>21</sup> The biggest issue here is technology, which is dangerous for human dignity and privacy, if no strict legal regulations protect citizens and their rights, including cognitive liberty, privacy laws, and empirical rigour or at least part of these. If such protections are not in place, it is not difficult to envision a future in which the mind becomes a data bank and the justice system is akin to a police force monitoring people's thoughts.<sup>22</sup>

### **7. Recommendations for Legal and Scientific Regulation**

Considering constitutional protection, ethical boundaries, and accuracy, brain fingerprinting in India requires constitutional law the most. The admissibility of such evidence should be written down in the law through changes in the Bharatiya Sakshya Adhinyam, 2023, that limit the use of neuroscientific evidence only to cases where the evidence has been subjected to a rigorous peer review validation process consistent with the U.S. Daubert standard<sup>23</sup> or U.K. guidelines<sup>24</sup> and is even allowed as secondary evidence after independent experts evaluate it.<sup>25</sup> With the implementation of Article 20(3), there must be no exceptions regarding voluntariness and informed consent, and the Courts must disregard any evidence obtained under coercion, custody, or any form of undue pressure.<sup>26</sup> A Statutory Board on Neuroscientific Evidence operating under the Ministry of Law & Justice should verify the technologies beforehand, distribute the corresponding regulations, conduct the necessary annual auditing, and submit their reports to Parliament. It must be emphasised here that scientific

confirmation must come first before proceeding with the use of such technologies.<sup>27</sup>

This confirmation will come through studies on specific populations, with contributions from NLUs, AIIMS, and IITs, and the establishment of a repository designed in compliance with privacy regulations, which will also be instrumental in monitoring error rates. The judicial academies should incorporate neuroscience and forensic psychology courses into their curricula, and a National Judicial Academy handbook should be published, so that judges know the advantages and challenges of this technology. Finally, public awareness and legal safeguards must complement judicial and scientific reforms. National campaigns should inform citizens about the risks, limitations, and legal boundaries of brain fingerprinting, mirroring existing efforts on DNA profiling.<sup>28</sup> Simultaneously, privacy laws should be amended to prohibit their use in non-forensic domains such as employment screening, political vetting, or consumer profiling, while introducing criminal penalties for misuse outside regulated legal contexts.<sup>29</sup> Collectively, these measures would embed brain fingerprinting within a constitutional, ethical, and scientifically credible framework, ensuring its role remains one of justice delivery rather than social control.

### **8. Conclusion**

Brain fingerprinting exists in the nexus of neuroscience and the law, with much promise for investigation but profound scientific, ethical and social issues to confront. Though its advocates promote it as a potentially helpful tool in complex cases involving terrorism and sexual offences, the unresolved debate about reliability, risk of error and potential selective misuse still leaves this application in the category of highly disputable. Science should never be taken as final proof, but only as a supplement to be bolstered by other evidence. Key in the future is to engage in a two-pronged approach, i.e. establishing rigorous admissibility criteria, statutory oversight and enforceable safeguards and investment in independent validation studies, neuroscience and law partnerships, and judicial education. Further studies should look beyond accuracy analysis and investigate cultural and linguistic factors, long-term reliability, and issues of cognitive privacy. The only way the technology can positively contribute to justice is through a careful, evidence-based and rights-sensitive deployment,

rather than a coercive tool or a mechanism of social harm.

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### References:

- Rissman J, Greely HT, Wagner AD. Detecting individual memories through the neural decoding of memory states and past experience. *Proc Natl Acad Sci U S A*. 2010; 107(21):9849-54.
- Farwell LA. Brain fingerprinting: a comprehensive tutorial review of detection of concealed information with event-related brain potentials. *Cogn Neurodyn*. 2012; 6(2):115-54.
- Amrita A, Deokar RB. Clinical forensic psychology: its emergence, significance and application in India. *J Forensic Med Sci Law*. 2022; 31(2):80-3.
- Justice K.S. Puttaswamy (Retd.) and Anr. vs. Union of India and Ors., (2017) 10 SCC 1.
- United States v. Semrau, 693 F.3d 510 (6th Cir. 2012).
- Lenca M, Andorno R. Towards new human rights in the age of neuroscience and neurotechnology. *Life Sci Soc Policy*. 2017; 13(1):5.
- Law Commission of India. *185th Report on Review of the Indian Evidence Act, 1872* [report]. New Delhi: Government of India; 2003 [cited on 7<sup>th</sup> Aug 2025]. Available from: <https://cdnbbsr.s3waas.gov.in/s3ca0daec69b5adc880fb464895726dbdf/uploads/2022/08/2022081047.pdf>
- Law Commission of India. *277th Report on Wrongful Prosecution (Miscarriage of Justice): Legal Remedies* [report]. New Delhi: Government of India; 2018 [cited on 7<sup>th</sup> Aug 2025]. Available from: <https://cdnbbsr.s3waas.gov.in/s3ca0daec69b5adc880fb464895726dbdf/uploads/2022/08/2022081613.pdf>
- Rosenfeld JP. P300 in detecting concealed information and deception: a review. *Psychophysiology*. 2020; 57(7):e13362.
- Santokben Sharmanbhai Jadeja v. State of Gujarat., 2008 CRILJ68
- Dinesh Dalmia v. State, 2006 CRILJ 2401
- Kotsoglou KN. Proof beyond a context-relevant doubt: a structural analysis of the standard of proof in criminal adjudication. *Artif Intell Law*. 2020; 28(2):111-33.
- Farwell LA, Richardson DC, Richardson GM. Brain fingerprinting field studies comparing P300-MERMER and P300 brainwave responses in the detection of concealed information. *Cogn Neurodyn*. 2013; 7(4):263-99.
- Palmer R. Time to take brain-fingerprinting seriously?: a consideration of international developments in forensic brainwave analysis (FBA), in the context of the need for independent verification of FBA's scientific validity, and the potential legal implications of its use in New Zealand. *Te Wharenga: N Z Crim Law Rev*. 2017 1(4):330-56.
- Luber B, Lisanby SH. Enhancement of human cognitive performance using transcranial magnetic stimulation (TMS). *Neuroimage*. 2014; 85:961-70.
- Bublitz C. Neurotechnologies and human rights: restating and reaffirming the multi-layered protection of the person. *Int J Hum Rights*. 2024; 28(5):782-807.
- Lenca M, Haselager P, Emanuel E. Brain leaks and consumer neurotechnology. *Nat Biotechnol*. 2018; 36:805-10.
- Rojo George v. Deputy Superintendent of Police, 2006 (2) KLT 197 (Kerala High Court).
- Farahany NA. Neuroscience and behavioral genetics in US criminal law: an empirical analysis. *J Law Biosci*. 2015; 2(3):485-509.
- Yuste R, Goering S, Arcas B, Bi G, Carmena JM, Carter A et al. Four ethical priorities for neurotechnologies and AI. *Nature*. 2017; 551: 159-63.
- Rosenfeld JP. Brain fingerprinting: a critical analysis. *Sci Rev Ment Health Pract*. 2005 ;4(1):20-37.
- Aloamaka PC, Itsueli PO, Nwabuoku MO. The right to cognitive liberty: protecting mental privacy in the age of neurotechnology. *Cogito: Multidiscip Res J*. 2025; 17: 98.
- Gaudet LM. Brain fingerprinting, scientific evidence, and Daubert: a cautionary lesson from India. *Jurimetrics*. 2010; 51: 293.
- Wilcoxson R, Brooks N, Duckett P, Browne M. Brain fingerprinting: A warning against early implementation. *Aust Pol J*. 2020; 74(3):126-31.
- Kerkmans JP, Gaudet LM. Daubert on the brain: how New Mexico's Daubert standard should inform its handling of neuroimaging evidence. *N M Law Rev*. 2016; 46:383.
- Escobar Veas J. Brain-reading technologies and the right against self-incrimination: a challenge for the distinction between testimonial and real evidence. *Ger Law J*. 2025; 1-19.
- Forensic science on trial: a critical analysis of DNA profiling, polygraph test, finger print test, and brain mapping in the Indian criminal justice system. *Int J Environ Sci*. 2025; 11(12s):972-7.
- Ravat PS, Deokar RB, Ravat SH. Future and scope of forensic neurosciences in criminal investigation system towards justice. *J Forensic Med Sci Law*. 2022; 31(1):77-82.
- Bublitz C. Banning biometric mind reading: the case for criminalising mind probing. *Law Innov Technol*. 2024; 16(2):432-62.