

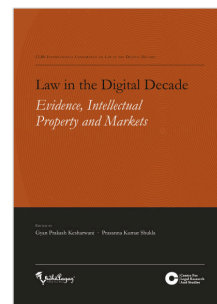
CHAPTER 5

Reading the Guilty Mind: Neurotechnology, Brain Data and the Evidentiary Determination of Mens Rea

Debasrita Choudhury

in *Law in the Digital Decade: Evidence, Intellectual Property and Markets*, edited by Gyan Prakash Kesharwani and Prasanna Kumar Shukla (VidhiAagaz 2026), pp. 41–49

DOI <https://doi.org/10.63108/VAB.LDD.2.5>



CITATIONS

BLUEBOOK (21ST ED.)

Debasrita Choudhury, *Reading the Guilty Mind: Neurotechnology, Brain Data and the Evidentiary Determination of Mens Rea*, in *LAW IN THE DIGITAL DECADE: EVIDENCE, INTELLECTUAL PROPERTY AND MARKETS* 41 (Gyan Prakash Kesharwani & Prasanna Kumar Shukla eds., VidhiAagaz 2026).

OSCOLA (4TH ED.)

Debasrita Choudhury, 'Reading the Guilty Mind: Neurotechnology, Brain Data and the Evidentiary Determination of Mens Rea' in Gyan Prakash Kesharwani and Prasanna Kumar Shukla (eds), *Law in the Digital Decade: Evidence, Intellectual Property and Markets* (VidhiAagaz 2026) 41.

CHICAGO (17TH ED.)

Choudhury, Debasrita. "Reading the Guilty Mind: Neurotechnology, Brain Data and the Evidentiary Determination of Mens Rea." In *Law in the Digital Decade: Evidence, Intellectual Property and Markets*, edited by Gyan Prakash Kesharwani and Prasanna Kumar Shukla, 41–49. Maihar: VidhiAagaz, 2026. <https://doi.org/10.63108/VAB.LDD.2.5>.

APA (7TH ED.)

Choudhury, D. (2026). Reading the guilty mind: Neurotechnology, brain data and the evidentiary determination of mens rea. In G. P. Kesharwani & P. K. Shukla (Eds.), *Law in the digital decade: Evidence, intellectual property and markets* (pp. 41–49). VidhiAagaz. <https://doi.org/10.63108/VAB.LDD.2.5>

SOURCE

<https://doi.org/10.63108/VAB.LDD.2.5>

LICENCE

Open access under the Creative Commons Attribution-NonCommercial 4.0 International Licence (CC BY-NC 4.0): it may be copied, shared and adapted for non-commercial purposes, with credit to the authors and the source.

Citations are given as a guide; check them against the style manual you follow. This page was added by VidhiAagaz to the downloaded file. The chapter follows, with the page numbers of the printed book.

CHAPTER 5

Reading the Guilty Mind: Neurotechnology, Brain Data and the Evidentiary Determination of Mens Rea

DEBASRITA CHOUDHURY*

Mens rea is typically ascertained by the criminal law using external evidence, such as conduct, communications, motive, admissions, surrounding circumstances, expert testimony, and other factors from which a court may deduce the accused's mental state. This conventional evidential model is under threat from the rapid advancements in neurotechnology. It is possible that information from the brain itself may be used in criminal prosecutions thanks to techniques that can measure cerebral activity and identify patterns linked to recognition, decision-making, attention, and other cognitive functions. This poses an important question: can brain data prove legally significant mental states like knowing, recklessness, or intention?

*With a focus on Indian criminal law, this study investigates the evidential and constitutional ramifications of employing neurotechnology to establish mens rea. It contends that while neurological evidence may be significant to criminal liability, a legally liable mental state cannot be equated with the presence of brain activity. The study highlights the inferential difference between legal proof of purpose or knowing and biological evidence of brain activity. In light of *Selvi v. State of Karnataka* (AIR 2010 SC 1974) and the Supreme Court's acknowledgment of privacy as a basic right in *K.S. Puttaswamy v. Union of India* (AIR 2017 SC 4161), it also explores the implications of brain-based evidence under Articles 20(3) and 21 of the Indian Constitution. Additionally, the research assesses the evidentiary framework of the *Bharatiya Sakshya Adhiniyam*, 2023.*

According to the paper's cautious admissibility paradigm, neurotechnological evidence should be regarded as expert testimony that is subject to stringent scientific validation, individualized dependability, constitutional protections, and judicial review. Most significantly, mens rea shouldn't be independently established by brain data. Neurotechnological evidence that has been properly validated may, at most, support other evidence from which a court derives a legal conclusion on the accused's mental state.

Keywords: neurotechnology, mens rea, criminal liability, brain data, and evidential law

1 INTRODUCTION

Actus non facit reum nisi mens sit rea. It is the most basic tenet of criminal jurisprudence that the crime and the associated guilty mental state are the two fundamental prerequisites for criminal liability, both *actus* as well as *mens rea*. Criminal law typically distinguishes between the levels of associated intellect or mental state such as intention, knowledge, negligence or recklessness. And even though the exact definition of mens rea varies depending on the offence, the very obvious issue arises that the law is unable to directly see the mind, or detect the exact mental state during a crime.

Whether an accused deliberately ignored a risk, or had the requisite cognition of the foreseeable outcome, or meant to cause death, all these eventualities are determined by several indirect inputs to ascertain the mental state during the causation of crime. Courts employ evidence to rebuild the accused's mental

* Academician.

state. Such a conclusion may be corroborated by the weapon used, the attack technique, previous criminal activity, behaviour both before and after the offence, motive, and surrounding circumstances.

Our age-old method of evidence backed assertions of mental state faces a potentially revolutionary threat with the advent of neurotechnology. With the use of technologies like Electroencephalography (EEG)¹, Functional Magnetic Resonance Imaging (fMRI)², brain-computer interfaces, and other neural recording or decoding systems, modern neuroscience can quantify various aspects of brain activity and cognitive performance. Neural correlates of intention, awareness, risk perception, decision-making, and self-control have all been studied. As a result, researchers have started questioning whether neuroscience could give judges information directly related to criminal liability.

The point of contention is not whether research and innovation has caught up with the prolific intricacies of the human brain and what mapping such data could mean for the medical as well as the legal field. Rather, the question is, can it be relied upon solely to satisfy the legal nuances of attributing criminal liability? The basic difference between civil and criminal liability, as is taught even in imparting primary legal education, is that civil liability focuses on a preponderance of probability, that causation naturally may follow. However, a criminal liability is a much heavier burden and therefore requires the court to be satisfied that the accused is guilty beyond reasonable doubt. This standard extends to the preliminary requisite of *mens rea*, the act and therefore its consequences. At this juncture, can an innovative brain measurement prove a legally defined mental state with absolute certainty, to be held up in courts?

This distinction is crucial. A neural pattern linked to decision-making should not immediately prove that the accused legally intended a specific outcome. Similarly, awareness of an act's unlawful nature may not be essentially established by a brain pattern linked to recognition. There are multiple levels of interpretation involved in the process, from neurological observation to legal decision.

This study makes the case that constitutional and evidentiary restrictions should apply to the use of brain data in India if it is used as proof of *mens rea*.

2 CORRELATING MENS REA AS A LEGAL CONCEPT AND BRAIN DATA ANALYSIS

Mens rea is a normative legal concept. Under criminal law, certain behaviours are viewed as more culpable than others, hence it gives importance to mental states. It is possible for two persons to carry out nearly identical physical acts while having distinct mental states, which could lead to different criminal outcomes. The mental connection to the act is essentially different, but the physical outcome is comparable. As a result, law poses queries such as, did a defendant plan the outcome? Was the accused aware of the likelihood of the outcome? Was the behaviour unintentional or did the accused have the legal capacity to comprehend the nature or ramifications of the behaviour? The importance of mental states is not eliminated by the Bharatiya Nyaya Sanhita, 2023. Concepts like intention, knowledge, criminal intention, and certain types of awareness are nevertheless used in its general exclusions and offense-specific restrictions. For instance, Section 22³ addresses the actions of a person of unsound mind who is unable to understand

¹ Britton JW, Frey LC, et al., *Electroencephalography (EEG): An Introductory Text and Atlas of Normal and Abnormal Findings in Adults, Children, and Infants*, Chicago: American Epilepsy Society; 2016. Introduction. <https://www.ncbi.nlm.nih.gov/books/NBK390346/> <last accessed 26 August 2026>

² Glover GH. *Overview of functional magnetic resonance imaging*. *Neurosurg Clin N Am*. 2011 Apr; 22(2):133-9, vii.

³ Bharatiya Nyaya Sanhita 2023, § 22.

the nature of the conduct or that it is illegal, whereas Section 18⁴ recognizes accidents when an act is undertaken without criminal intention or awareness under specific circumstances. In specific circumstances, Indian criminal adjudication still requires courts to ascertain mental state. Therefore, neurological data may go a long way in predicting, with some accuracy, the legal query thus raised.

The field of neuroscience has created techniques for examining the anatomy and functioning of the brain. EEG captures scalp electrical activity. fMRI is frequently employed as an indirect measure of brain activity and measures changes related to blood oxygenation.⁵ Neural signal recording and interpretation for technical and medicinal applications is becoming more and more possible. Brain activity has been studied in relation to intention, voluntary action, risk perception, consciousness, and self-control. Research in existence acknowledges that this kind of data could someday have an impact on legal issues related to criminal liability.⁶ The question of whether distinct psychological and neurological processes correspond to various legally relevant mental states is one significant area of research.

For instance, established literature deliberates on the matter whether legal distinctions like “knowing” and “reckless” correspond to sufficiently different mental and neural states to make brain-based detection possible.⁷ However, admissibility and probability of being admissible are not synonymous. Mere suggestion of ‘knowing’ the possibility of a specific outcome does not negate decades of criminal jurisprudence in establishing a mind state.

It raises a question whether neural correlation is verifiable by law. The temptation to accept scientific measurement as the same as certainty is the biggest risk in the legal system.

Hypothetically, if a pattern statistically linked to conscious decision-making is found by a brain-scanning device, the prosecution may contend that because the neural pattern was present, the accused deliberately desired the outcome. It is not always the case that this conclusion follows. The inferential chain is far longer in reality.

Neural activity presupposes cognitive function which in turn leads to a psychological state, the cumulative sum of which is much greater than the legally significant mental state that leads to criminal responsibility.

A brain scan may reveal activity related to making decisions which doesn’t necessarily prove what the individual chose, why they decided it, or whether the decision meets the legal definition of intention. The types of individual mental states that criminal law requires judges to ascertain are still difficult to infer from current research.⁸

A significant challenge is that a large portion of neuroscientific research is conducted at the group level. A study may find a statistical correlation between a psychological task and a specific brain pattern in a group of volunteers. However, a criminal court does not decide whether a group was mentally ill. It involves ascertaining if the accused had the mental condition necessary for this specific offence at the moment. Thus, it is important to distinguish between group-level correlation and individual-level inference. When it comes to determining whether a specific defendant had a certain mental state at the time

⁴ Bharatiya Nyaya Sanhita 2023, § 18.

⁵ Glover GH. *Overview of functional magnetic resonance imaging*. *Neurosurg Clin N Am*. 2011 Apr;22(2):133-9, vii.

⁶ Faigman, David L.; Monahan, John; and Slobogin, Christopher, *Group to Individual (G2i) Inference in Scientific Expert Testimony* University of Chicago Law Review Vol. 81: Iss. 2, Article 1 (2014). <https://chicagounbound.uchicago.edu/uclrev/vol81/iss2/1> <last accessed 5 September 2026>

⁷ Owen D. Jones, Read Montague, and Gideon Yaffe, *Detecting Mens Rea in the Brain*, 169 *University of Pennsylvania Law Review* 1 (2020). <https://scholarship.law.vanderbilt.edu/faculty-publications/1293> <last accessed 3 September 2026>

⁸ Morse S. J. (2023). *Neurolaw: Challenges and limits*. *Handbook of Clinical Neurology*, 197, 235–250 (2023) <https://doi.org/10.1016/B978-0-12-821375-9.00003-7> <last accessed 5 September 2026>

of a certain criminal act, an algorithm might be very effective at finding trends in a research population, but it might not be sufficiently dependable.⁹

3 THE EVIDENTIARY STATUS OF NEUROLOGICAL DATA UNDER INDIAN LEGAL FRAMEWORK

The current Indian framework for evidence admissibility and proof is provided by the Bharatiya Sakshya Adhiniyam, 2023. Sections 61-63¹⁰ deal with electronic or digital documents and their evidentiary value, whereas Section 39¹¹ deals with expert opinion.

Evidence from neurotechnology does not fall into a conventional category. One possible digital record is a brain scan. Expert opinion may be included in the scan's interpretation. Algorithmic inference may also be used in a neural-decoding system. Consequently, a court ought to make at least three distinctions: unprocessed neural data, the data's scientific interpretation and the intended legal inference derived from the interpretation. A technological record might be the first. The second could be covered by expert testimony. The court still has to decide on the third. The scientific meaning of a brain signal can be explained by an expert. However, the final legal question of whether the accused had mens rea should not be decided by the expert. Neurological data may be pertinent, but this does not imply that it is trustworthy enough to support a criminal conviction. Therefore, a robust evidentiary framework should differentiate between individual dependability, scientific validity, procedural integrity, relevance, and alignment with constitutional values.

Before relying on any neurological technology as evidence, the prosecution ought to establish primarily the rate of errors of the technology, the general approach employed, whether the outcome is repeatable, if the technology was correctly adjusted given outliers, whether the outcome can be skewed by environmental influences, whether independent testing has been done on the algorithm. Most importantly, it ought to be established convincingly whether the outcome is applicable to the specific accused. As neuroscience data can seem more authoritative than its true probative value justifies, this strategy is especially crucial. Exaggerated assumptions about the legal significance of neuroscience have been cautioned against by neurolaw scholars on several occasions.¹²

3.1 Can Brain Data Be Self-Incriminating under Article 20(3)?

According to Article 20(3)¹³ no one accused of a crime may be forced to testify against himself.

Self-incrimination has always been understood in terms of forced statements. The leading judgement on the facets of self-incrimination, *State of Bombay v. Kathi Kalu Oghad*,¹⁴ has stipulated that providing physical evidence such as handwriting and blood samples will not come under the ambit of this Article,

⁹ Christopher Slobogin, *Neuroscience nuance: dissecting the relevance of neuroscience in adjudicating criminal culpability*, Journal of Law and the Bio-sciences, Volume 4, Issue 3, December 2017, Pages 577–593. <https://doi.org/10.1093/jlb/lxx033> <last accessed 5 September 2026> Faigman, David L.; Monahan, John; and Slobogin, Christopher, *Group to Individual (G2i) Inference in Scientific Expert Testimony* University of Chicago Law Review Vol. 81: Iss. 2, Article 1 (2014). <https://chicagounbound.uchicago.edu/uclrev/vol81/iss2/1> <last accessed 5 September 2026>

¹⁰ Bharatiya Sakshya Adhiniyam 2023, §§ 61, 62, 63.

¹¹ Bharatiya Sakshya Adhiniyam 2023, § 39.

¹² Aharoni, E., Funk, C., Sinnott-Armstrong, W., & Gazzaniga, M. *Can neurological evidence help courts assess criminal responsibility? Lessons from law and neuroscience*. Annals of the New York Academy of Sciences, 1124, 145–160 (2008). <https://doi.org/10.1196/annals.1440.007> <last accessed 5 September 2026>

¹³ Constitution of India, 1950, art 20, cl. 3

¹⁴ The State of Bombay v. Kathi Kalu Oghad, 1961 AIR 1808.

thus exempting certain categories of evidence from this defence. The recent judgement of *Ritesh Sinha v. State of Uttar Pradesh*¹⁵ confirmed that voice samples fall within this same category. However with advanced neurotechnology, the difference between “speaking” and “revealing” is called into question. Should information obtained by a procedure from a person’s brain be regarded as testimonial or tangible evidence if the individual does not need to intentionally disclose it, or more so, consent to it?

In *Selvi v. State of Karnataka*¹⁶ the Supreme Court addressed an earlier iteration of the same issue.

Narco-analysis, polygraph tests, and Brain Electrical Activation Profile (BEAP), often known as brain-mapping techniques, were all invoked in this case. According to Article 20(3)¹⁷ and Article 21¹⁸ the Supreme Court considered the involuntary use of these methods to be unconstitutional. As the Court acknowledged that the protection against self-incrimination cannot be limited to the actual act of speaking, its ruling is especially noteworthy.

Future neurotechnology will be greatly impacted by the constitutional principle that emerged from *Selvi*. In the past, Indian constitutional law has made a distinction between the gathering of tangible evidence and forced testimony. Typically, a forced statement provides more insight into a person’s thoughts than a fingerprint, blood sample, or handwriting specimen. This difference is complicated by brain data. The State may contend that a brain device is comparable to physical evidence if it only records physiological data.¹⁹

However, if the technology decodes acknowledgment of a specific incident, the person’s memories, recognition of a fact, the goal, a sentimental reaction, choices, or other data stored in the individual’s mental processes, the claim that the evidence is only physical is significantly undermined. Possibility of self-incrimination increases with the degree to which a technology directly incorporates personal knowledge. *Selvi* is more than just a case using outdated investigative methods. Its treatment of mental privacy and forced extraction of personal knowledge has deeper constitutional relevance. As a result, the Supreme Court’s ruling can offer a constitutional basis for examining technologies that are far more advanced than BEAP. In fact, it may be argued that a future technology that could decipher an individual’s intention would pose a more significant issue than a method that could just detect knowledge of particular information. Therefore, the constitutional concern should focus on the type of information being retrieved rather than just how it was obtained.²⁰

3.2 The Qualms of Privacy

The Supreme Court acknowledged privacy as a fundamental right safeguarded by Article 21²¹ and linked to the rights provided by Part III of the Constitution in the case of *K.S. Puttaswamy v. Union of India*.²² Secrecy about communications or physical locations is not the only aspect of privacy. It also includes control over private facets of one’s life, autonomy, and dignity.

¹⁵ *Ritesh Sinha v. State of Uttar Pradesh*, (2019) 8 SCC 1.

¹⁶ *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

¹⁷ Constitution of India, 1950, art 20, cl. 3

¹⁸ Constitution of India, 1950, art 21.

¹⁹ Escobar Veas, Javier. *Brain-Reading Technologies and the Right Against Self-Incrimination: A Challenge for the Distinction Between Testimonial and Real Evidence*. German Law Journal 26.4: 683–701 (2025) Web.

²⁰ Id.

²¹ Constitution of India, 1950, art 21.

²² *Justice K.S. Puttaswamy (Retd) v. Union of India*, (2017) 10 SCC 1.

The brain is intimately linked to contemplation, memory, purpose, sentiment, decision-making, identity, and awareness, thus making neural data a particularly sensitive category. As a result, brain data can be entitled to a higher level of security than regular personal data. This issue is the focus of the new notion of mental privacy, often known as cognitive liberty. DNA may disclose biological traits. However, what a person remembers, recognizes, desires, fears, or decides may be revealed by neural data. The latter may be far more invasive of the person's mental autonomy.²³

Traditionally, the State uses behaviour observation to look into crimes. By penetrating the evidentiary realm of mind itself, neurotechnology may enable research but it also raises a constitutional question that could be referred to as the "last private frontier" of personal autonomy: should people be allowed to maintain a protected space where their thoughts and cognitive processes cannot be extracted by the state unless there are extremely compelling circumstances?

3.3 Facing Overbearing Criminal Jurisprudence

Neurotechnology has a base issue with criminal law, even if constitutional problems are resolved. It is up to the prosecution to prove guilt beyond a reasonable doubt. Hypothetically, if a neural technology can identify a specific cognitive state with 90% accuracy it might look impressive. However, a 90% accuracy rate does not prove beyond a reasonable doubt that the accused person had the pertinent mental state. Typically, the criminal justice system doesn't inquire: "Is this technology generally accurate?" It poses: "Has the prosecution met the necessary standard to prove this accused's guilt?" This leads to a significant epistemological issue. Probabilistic evidence could be produced by a technology but a legal conclusion is necessary in criminal law. Therefore, the court must refrain from turning statistical certainty into criminal certainty.²⁴

The most appealing and challenging argument for neurotechnology is intention. Neuroscience can research the cognitive mechanisms involved in intentional action. Brain activity linked to motor skills, consciousness, agency, and decision-making has already been studied.²⁵

However, the legal definition of intention is situational. It takes into account intention, causation, knowledge of actions and foresight of their consequences, acts of self-defence and a lot more factors. Information about cognitive activity could be obtained from a brain signal. However, the court must take the surrounding facts into account in order to classify that conduct legally. A neurological scan might not be as probative as the weapon used, distance between accused and victim, words spoken, number of injuries, prior threats, and subsequent behaviour. Thus, contextual reasoning should not be replaced by neurotechnology. It might, at most, complement it.²⁶

Neuro-determinism poses another conceptual risk. The normative underpinnings of criminal liability may be threatened by such a view. People are not punished by the law just because they have a specific brain anatomy. Additionally, it shouldn't penalize people because an algorithm finds a brain tendency linked to antisocial behaviour. There is a basic difference between tendency and responsibility. Without

²³ Francis X. Shen, *Neuroscience, Mental Privacy, and the Law*, 36 Harv. J.L. & Pub. Pol'y 653 (2013). https://scholarship.law.umn.edu/faculty_articles/599 <last accessed 7 September 2026>

²⁴ Eastman, N., & Campbell, C. *Neuroscience and legal determination of criminal responsibility* Nature reviews. Neuroscience, 7(4), 311–318 (2006). <https://doi.org/10.1038/nrn1887> <last accessed 7 September 2026>

²⁵ Id.

²⁶ Slobogin, Supra note 9.

committing any crimes, a person may have a neurobiological trait that is statistically linked to impulse or pre-disposition to violence.²⁷

In a similar vein, a neurological condition might be important to an insanity defence or another legally recognized exception, but it wouldn't immediately absolve someone of blame. Neuroscience evidence may be pertinent to issues like involuntariness, mens rea, insanity, and mitigation, according to existing research, but its legal value varies greatly depending on what the evidence really shows.²⁸

In some situations, the application of neuroscience may be more justifiable than the direct proof of mens rea. Acts of a person of unsound mind who, at the relevant time, is unable to understand the nature of the conduct or that what they are doing is improper or illegal are recognized as an exception under Section 22²⁹ of the BNS. In this case, neurological evidence could help the judge comprehend impairment of cognition and circumstances that impact logical comprehension. But even in this case, it's crucial to distinguish between medical diagnosis and legal culpability. Whether the statutory requirements are met is still a pertinent legal concern. Neurotechnology should therefore supplement legal judgment rather than replace it.³⁰

3.4 Should Neurological Data Be Treated as a New Category of Evidence?

As neurotechnology advances, the current categories of evidence might become more and more insufficient. A few types of neuro-evidence could be distinguished using a conceptual classification. For example, *structural evidence* relates to the physical features of the brain, such as signs of neurological damage or anomalies. It may be primarily relevant to ability, illness, impairment. *Functional evidence* relates to brain activity patterns connected to specific cognitive functions. Since correlation does not always prove a specific mental state legally, its applicability to mens rea is less clear. *Decrypted cognitive evidence* is the most sensitive classification. Technology that can convert brain activity into data on memories, intentions, preferences, recognition, or other cognitive content would be included. The case for considering neural information as a type of testimonial material protected by the Constitution gets stronger as technology advances in its ability to decode cognitive content.³¹

4 THE WAY FORWARD FOR THE INDIAN LEGAL SYSTEM

With the advent of research in neurotechnology, admissibility of evidence as explained in 'neurolaw' may not be as far in the future as one would believe. Courts would have to deliberate on a progressive admissibility framework. Evidence proving neurological impairment should be handled differently from evidence proving the accused's intent to kill. The court ought to differentiate between brain structure data, physiological reactions, cognitive information decoded among others.³²

²⁷ Morse, *Supra* note 8.

²⁸ Vitacco *et al.* *Neuroscience and the insanity defense: Trying to put a round peg in a square hole* Forensic Science International: Mind and Law, Vol. 5, article 100131 (2024).

²⁹ Bharatiya Nyaya Sanhita 2023, § 22.

³⁰ Shen, *Supra* note 23.

³¹ Maoz, U., & Yaffe, G. *What does recent neuroscience tell us about criminal responsibility?* *Journal of law and the biosciences*, 3(1), 120–139 (2015). <https://doi.org/10.1093/jlb/lsv051> <last accessed 7 September 2026>

³² Eastman, *Supra* note 24.

The prosecution needs to prove a scientific foundation of the technology relied upon, known rates of error, repeatability, autonomous verification, dependability in practical situations, suitable control groups, validity at the individual level etc.³³

The court should take Articles 20(3)³⁴ and 21³⁵ into independent consideration when the acquisition of such data was not voluntary. When the technology gathers personal information instead of only documenting physical attributes, further caution should be used. Even admissible neurotechnology shouldn't be given decisive weight by default. The court ought to take into account firsthand evidence, documentary proof, electronic correspondence, forensic proof, circumstantial proof, expert testimony etc.³⁶

The court must continue to make the final legal conclusion regarding mens rea. The *Corroboration, not Conviction Principle* is the idea put forth in this work. Until future scientific advancements show an exceptionally high degree of individualized reliability and the constitutional framework is correspondingly developed, neurotechnological evidence may support other evidence relevant to mens rea but should not independently establish criminal intention, knowledge, or recklessness. This acknowledges neuroscience's strengths and weaknesses. The intention should continue to be deduced from all of the evidence that is admissible under the law.

5 COMPARATIVE PERSPECTIVES AND THE EMERGENCE OF NEURO-RIGHTS

The growing controversy surrounding 'neuro rights' is especially pertinent. Technology access to the brain may necessitate legal safeguards beyond standard data protection.

Indian constitutional law acknowledges the unique relevance of involuntary information extraction from the mind, as demonstrated by the constitutional reasoning in *Selvi*.³⁷ The constitutional basis for safeguarding mental autonomy is further reinforced by *Puttaswamy*'s³⁸ acknowledgment of privacy as a basic right. Criminal courts already draw conclusions about mental states from incomplete evidence, which is the best justification for neurotechnology. Excluding neuroscience completely could deprive courts of potentially helpful evidence if it can offer more information. Expert testimony that is probabilistic rather than definitive is frequently used by courts. Despite their limits, psychiatric evaluations, forensic science, and medical evidence can help courts.

Neurotechnology in the United States is at a crossroads between disjointed privacy regulations and strict evidentiary gates. Because thought-decoding has a significant mistake rate and is not widely accepted in science, courts frequently prohibit advanced neuroimaging, such as fMRI lie detection, under the Daubert or Frye criteria.³⁹ As a result of the lack of a federal framework, individual states like Colorado and California have taken the lead by specifically updating their consumer privacy laws to protect sensitive neural data from commercial exploitation. Meanwhile, the legal battleground is rapidly shifting toward mental privacy.⁴⁰

³³ Id.

³⁴ Constitution of India, 1950, art 20, cl. 3.

³⁵ Constitution of India, 1950, art 21.

³⁶ Neal Feigenson, *Brain Imaging and Courtroom Evidence: On the Admissibility and Persuasiveness of fMRI*, 2 Int'l J. L. Context 233, 234 (2006).

³⁷ *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

³⁸ *Justice K.S. Puttaswamy (Retd) v. Union of India*, (2017) 10 SCC 1.

³⁹ *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923); *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993);

<https://www.expertinstitute.com/resources/insights/daubert-vs-frye-navigating-the-standards-of-admissibility-for-expert-testimony/> <last accessed 8 September 2026>

⁴⁰ Kristina Iliopoulos, Nancy L. Perkins, *Neural Data Privacy Regulation: What Laws Exist and What Is Anticipated?* Arnold & Porter (2025).

In the UK, neurotechnology is viewed more as an interpretive medical tool than as an impartial “truth machine.” UK courts easily accept structural brain scans to demonstrate organic brain injury under Civil Procedure Rules and criminal standards, but they mostly rely on expert psychiatric testimony to convert those physical lesions into legal arguments about mental capacity or impulse control. British judicial scrutiny focuses on the impartiality and dependability of expert interpretation rather than on sophisticated lie detection, guaranteeing that neuro-psychiatric evidence stays simply necessary and pertinent to the court’s comprehension.⁴¹

6 CONCLUSION

Before neurotechnological evidence is regularly made available to investigating agencies, India should think about creating a unique legal framework for it, including defining brain data separately due to its potential to expose cognitive content. It should outlaw forced cognitive extraction. Judicial monitoring ought to be required whenever neurotechnology is suggested in a criminal inquiry. Instead of depending solely on prosecution-retained specialists, courts should have access to independent scientific expertise. For a meaningful challenge, the accused should have access to the underlying data, methodology, algorithmic settings, and independent expert evaluation. India should prevent the right to a fair trial from being compromised by proprietary secrecy. Constitutional examination should become far more stringent as technology advances from tracking brain activity to decoding mental information.

Neuroscience itself is not the threat. Neuro-reductionism, the belief that a lawful mental state may be fully reduced to a quantifiable biological state, poses a threat. The moral underpinnings of criminal responsibility as well as evidentiary reasoning may be distorted by such reductionism.⁴²

Knowledge is not inherently derived from a brain pattern. *Mens rea* is not always a cognitive process. The primary challenge is the inferential divide between criminal law and neuroscience. Neural activity and psychological processes may be correlated by neuroscience; however, criminal liability is contingent upon legally defined mental states in the context of specific behavior. Although the *Bharatiya Sakshya Adhiniyam* offers a framework for the possible consideration of scientific and digital evidence, issues of dependability, individualization, and constitutional validity are inextricably linked to technical admissibility. Therefore, the proper Indian strategy should neither deny neuroscience nor give it control over criminal decisions.

Instead of taking the place of the court’s contextual evaluation of purpose and knowledge, brain data should typically be used as corroborating evidence. The tempting notion that technology can merely “read the guilty mind” should ultimately be rejected by criminal law. Determining what transpired inside a brain is not the only goal of criminal adjudication. It is to decide whether someone should be held criminally liable for an act based on legally established standards of culpability and proof. Any future Indian framework governing neurotechnological evidence must continue to centre around this distinction.

* * *

⁴¹ Catley, P., & Claydon, L. *The use of neuroscientific evidence in the courtroom by those accused of criminal offenses in England and Wales*. *Journal of law and the biosciences*, 2(3), 510–549 (2015). <https://doi.org/10.1093/jlb/lsv025>

⁴² Fallin M., Whooley O., Barker K. K. (2018). Criminalizing the Brain: Neurocriminology and the Production of Strategic Ignorance. *BioSocieties* 14, 438–462. 10.1057/s41292-018-0135-y.