

# Admissibility of "Raw Neural Data" as Criminal Evidence in Criminal Courts: A Jurisprudential, Legal, and Neuroscientific Analysis

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## 1. Round 1

### 1.1. Reviewer 1

Reviewer:

The article compellingly argues for the necessity of specialized regulations to govern the admissibility of neuro-evidence in Iranian courts, highlighting a significant legislative gap. The authors correctly identify that current standards relying solely on "expert opinion" are insufficient for the technical complexities of neuroscience data. Establishing specific protocols for data collection and defining acceptable error margins for analytical algorithms would indeed provide much-needed judicial clarity.

The emphasis on standardizing the experimental environment for data collection is a crucial point that warrants further elaboration. While the text mentions the need for protocols, it would benefit from discussing specific international standards that could be adapted for the Iranian legal context. Clarifying how environmental variables impact neural data integrity would strengthen the argument for rigid standardization.

The article rightly positions raw neural data as supporting evidence (circumstantial indicators) rather than standalone proof, particularly in severe cases like Hadd or Qisas. This cautious approach aligns with the high burden of proof required in criminal law and respects the current limitations of neurotechnology. Restricting its use to preliminary investigations with consent is a prudent interim measure.

While the call for interdisciplinary dialogue is well-founded, the article could benefit from outlining specific mechanisms for this collaboration. For instance, suggesting regular workshops, joint academic programs, or permanent liaison offices between law faculties and neuroscience institutes would provide concrete steps toward achieving the proposed synergy.

Authors revised the manuscript and uploaded the document.

## 1.2. Reviewer 2

Reviewer:

The proposal to set a minimum acceptable error rate for analytical algorithms is scientifically sound but practically challenging to implement without existing benchmarks. The review suggests the authors should provide examples of threshold values used in other jurisdictions or similar forensic technologies to make this recommendation more actionable for legislators.

The requirement for informed consent is appropriately highlighted as an ethical and legal necessity. However, the article could deepen this discussion by addressing how "informed consent" is defined and obtained in the context of criminal investigations, where suspects may feel coerced. Exploring the safeguards needed to ensure voluntariness would enhance the ethical framework presented.

The suggestion to form specialized "Neurolaw Committees" within the judiciary is a robust structural recommendation. Integrating judges, legal scholars, ethicists, and neuroscientists creates a necessary interdisciplinary check-and-balance system. This approach effectively addresses the risk of judicial bias or the misuse of unreliable scientific evidence.

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## 2. Revised

Editor's decision: Accepted.

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