

A Comprehensive Study on Narcos Analysis Using Deep Learning

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Abstract

The advancement of technology, increased individual freedom, a loss in the power of society, church, and family, and an increase in crime intensity have made criminal investigations more difficult. Always adapt the law to social developments. To deal with evolving crimes and offender techniques, the criminal justice system must evolve. Investigative organisations are employing a number of modern tools to get the truth from offenders and eyewitnesses. Most extensively used tests worldwide, including India, are Lie Detector, BEAP, and Narco-analysis. The use of narco-analysis testing in criminal investigations is a contentious issue. Mathematical functions are employed in Deep Learning to map input to output. In order to connect input and output, these functions extract non-redundant data or patterns.

Index Terms: Narcos. Deep Learning.

1. Introduction

"The most valuable thing a man possesses is his memory; if he loses it, he is neither rich nor poor." The crime wave is deceptive, the criminal intellect is perceptive, and the criminal soul is conceiving. Alexander Smith It is relatively recent that scientific methods have been utilised in the investigation of criminal cases. In the past, courts would base their decisions on paper evidence and other types of non-scientific evidence, such as the testimony of eyewitnesses. However, this type of evidence cannot be relied upon because its validity cannot be checked. The relatively new subject of narcoanalysis in the field of forensic science investigation has significantly increased the capabilities of forensic science laboratories, "cold cases," and other investigative methods in a significant way. Because of these breakthroughs in criminal investigation, cases that were previously thought to be unsolved or even closed have been resurrected. Deep learning, also known as deep structured learning, is a subset of a larger family of machine learning algorithms that is

constructed on artificial neural networks and representation learning. There are three distinct methods of education: supervised, semi-supervised, and unsupervised learning.

The Narco-analysis test is meant to uncover a person's drug use past through inquisitive questioning. However, as test takers will be asked to access their subconscious, it is assumed that all responses will be truthful and unscripted. Based on their findings, the experts agree that there must be audio and/or video tapes floating around with the accused's alleged confessions.

Criminal investigations can no longer be shielded from the ripple effects of the world's rapid technological development. Consequently, it became important to create scientific tools to improve the efficiency of forensic methods for identifying criminal activity. As a direct result, we have seen an expansion in the application of state-of-the-art scientific methods like narco-analysis testing to policing cases. Today's criminals employ such uses of modern technology to further their illicit goals.

2. Existing System

The subject of whether or not scientific evidence, such as that gained through narcoanalysis, is admissible in court is not particularly addressed by any law. The fact that 20% of those who undergo narco-analysis are found to be innocent is general known. Therefore, these processes not only aid in swiftly identifying the innocent, but also in determining the true offender, the motivation, and any possible conspiracies. Limitations: If a patient receives the wrong dose of a drug, they could go into a coma or perhaps die. There is little hope for a successful outcome if the patient being treated is addicted to narcotics.

3. Proposed System

The investigating agency is using this scientific analysis to confirm or disprove the suspect's guilt and to uncover any potential new evidence. Any time throughout an investigation, the results of such a test can provide a tip because it is a valuable and non-intrusive instrument for both the investigation and prevention of crimes. Benefits are: Narco-analysis and other scientific technologies should be made available to investigative authorities in cases where physical proof cannot be located. This shift is made possible in part by narco-analysis, which is gradually replacing the deplorable practise of torture as a means of eliciting confessions.

Approaches

- i. **Neural Networks:** A neural network is a set of algorithms that mimics the way the human brain works to find hidden patterns in data. Artificial intelligence and machine learning both make use of neural networks. The term "neural network" is used here to refer to both biological and man-made structures that rely on communication between neurons. Neural networks' flexibility in responding to new data allows them to consistently produce high-quality results without requiring frequent tweaks to the output criterion.
- ii. **Recurrent Neural Network:** Recurrent (RNN) neural networks (RNNs) are so named because they perform the same task for each element in a sequence, with the outcomes depending on the results of the calculations that came before them. For future reference, RNNs can recall the details of the calculations they have already completed thanks to their built-in "memory."
- iii. **Convolution Neural Network (CNN):** The advantages of spatially local correlation are amplified in CNNs by forcing a local connection pattern on the connections between neurons in neighbouring layers. The weights of the connections between each pair of neighbouring layers in a CNN are updated using the Back-propagation technique. The use of scientific equipment also contributed to the swift conclusion of the case.
- iv. **Long-Term Memory Capacity:** LSTM is able to acquire the necessary knowledge for "Deep Learning" tasks, which require memories of events that occurred hundreds or millions of discrete time steps in the past. These jobs require the recall of events that took place hundreds or even millions of years ago. LSTM is capable of processing signals with a lengthy delay as well as signals with a combination of low- and high-frequency components. Additionally, LSTM is capable of processing signals that contain both low- and high-frequency components.

4. Conclusion

The immaturity of Deep Learning and its applications. such The immaturity of deep learning and its applications, such as enormous deep neural networks that excel in speech recognition, object detection in the visual domain, and other language-related tasks, demand for extensive more research in the future. However, if the new architectures are creative enough, deep learning has endless potential in the future. This may include self-driving cars, robots exploring the cosmos, and other applications. In neural networks, the methodologies that are utilised are of a far higher level of

sophistication. In addition to the backpropagation method, there are a lot of other algorithms to choose from. Neural networks do exceptionally well when it comes to a particular category of tasks, such as the recognition of images. The methods for the neural network require a considerable amount of computing power. In our quickly advancing and technologically sophisticated culture, there has been a shift in the typical pattern of criminal activity. As a result, in order to ensure that justice is served, it is necessary to improve investigational procedures in cases like this. There is a great deal of debate regarding the acceptability of the narco-analysis method, and there are not even sufficient rules in place to deal with scientific instruments. Nevertheless, the narco-analysis method is one of these techniques, and it might be extremely helpful in the investigation.

References:

- [1] "Cell Proliferation Without Neurogenesis in Adult Primate Neocortex," D. Kornack and P. Rakic, Science, vol. 294, Dec. 2001, pp. 2127–2130, doi:10.1126/science.1065467
- [2] Geoffrey E. Hinton. A Quick Learning Method for Deep Belief Networks. 1554: 1527–1554, 2006.
- [3] Hannes Schulz and Sven Behnke, 3 (1 November 2012). Deep learning was discussed in KI - Künstliche Intelligenz 26(4):357-363.
- [4] Michael Young, the Technical Writer's Handbook. 1989, University Science; Mill Valley, California.
- [5] R. Nicole, "Title of paper with only the first word capitalised," J. Name Stand. Abbrev.
- [6] S. N. Ambedkar and Ajay Kr. Barnwal, "Narco-analysis Test: An Analysis of Various Indian Judiciary Decisions," Journal of Humanities & Social Science 19, (2014)
- [7] Yoshua Bengio (2009), "Learning Deep Architectures for AI," Foundations and Trends in Machine Learning: Vol. 2: No. 1, pp. 1-127