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NARCO ANALYSIS AND DEEP LEARNING

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Abstract - The complexity of criminal investigations has been brought on by the development of technology together with increasing individual freedom, a decline in the influence of society, church, and family, and an increase in crime intensity. Always keep the law in step with societal trends. In order to deal with the evolving nature of crimes and offenders' tactics, the criminal justice system needs also be developed. Therefore, investigatory organisations are adopting a variety of contemporary technologies to get the truth from the offender and any eyewitnesses engaged in the crime through the introduction of technological innovation. The most widely utilised tests all across the world, including India, are the Lie Detector, BEAP, and Narco-analysis tests. The use of narco-analysis tests in criminal investigations is one of the most hotly contested topics right now. Mathematical functions are used in Deep Learning, a subset of Machine Learning, to map the input to the output. In order to establish a connection between the input and the output, these functions can extract non-redundant data or patterns from the data.

Key Words: Neural Networks, CNN, RNN, LSTM

1. INTRODUCTION

"A man's true possession is his memory; without it, he is neither rich nor poor. Crime wave deceives, criminal mind perceives, and criminal soul conceives. —Alexander Smith It is only new that science has been used to look at criminal instances. In the past, courts would rely on papers and other non-scientific evidence, such as testimony from eyewitnesses, but this evidence cannot be relied upon because its veracity cannot be verified. Narco-analysis, a recent innovation in the field of forensic science inquiry, has considerably improved the capacities of forensic science laboratories, "cold cases," and other investigative techniques. These developments in criminal investigation have given new life to cases that had been labelled as unresolved or dead. A larger family of machine learning techniques built on artificial neural networks and representation learning includes deep learning, often referred to as deep structured learning. The three types of learning are supervised, semi-supervised, and unsupervised

1.1Objective

The Narco-analysis test's goal is to recover a person's usage of drugs through their imagination, but because the test will neutralize their imagination because they will access their subconscious minds, it is assumed that whatever they say is spontaneous and accurate. According to the experts' findings, the accused's comments are captured on audio and video tapes.

1.2 Scope

Criminal investigations are no longer immune to the impacts of current technological advancements in all aspects of life, which made it necessary to develop scientific instruments to increase the effectiveness of investigative techniques for identifying crimes. As a result, we have seen a surge in the employment of contemporary scientific methods, such as narco-analysis tests, in criminal investigations. This is how modern-day criminals utilise science and technology to carry out their illicit operations.

2. EXISTING SYSTEM

The admissibility of scientific evidence, such as that from narco-analysis, is not explicitly addressed in any law. It is known that 20% of those who undergo narco-analysis are ultimately proven to be innocent; as a result, these procedures not only assist to quickly identify the innocent but also the genuine culprit, motive, and conspiracies, among other things.

Disadvantages

- If a chemical is administered in the improper amount, it might put a patient in a coma or cause their death.
- If the individual is drug dependent, the method is not very successful.

3. PROPOSED SYSTEM

The investigative agency uses this scientific test to gather concealed evidence and establish the accused's guilt or innocence. The outcome of such a test can serve as a hint throughout the investigative process since it is a valuable

and non-intrusive tool for both the investigation and the prevention of crimes.

Advantages

- The investigating authorities should be given access to scientific methods like narco-analysis when there is no way to find evidence in the utmost darkness.
- Narco-analysis aids in displacing the archaic, morally repugnant approach of acquiring truth through torture.

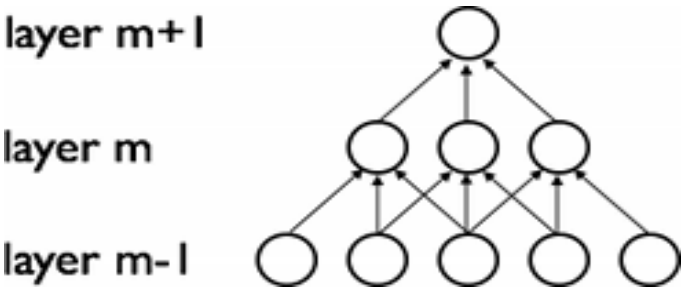
4. TECHNOLOGIES

1. Neural Networks: A neural network is a collection of algorithms that aims to identify underlying correlations in a piece of data by simulating how the human brain works. In this context, systems of neurons, whether natural or man-made, are referred to as neural networks.

Because neural networks are able to adjust to changing input, they can produce the optimal results without having to change the output criterion.

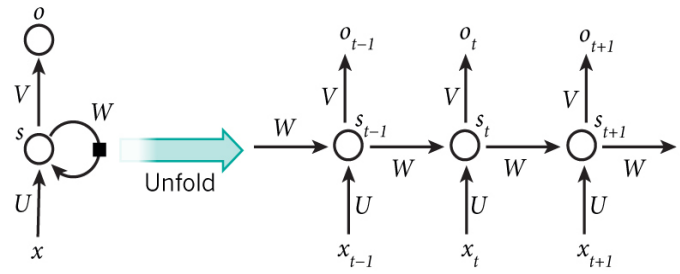
2. Convolution Neural Network (CNN)

CNNs use spatially local correlation to their advantage by imposing a local connection pattern between neurons in neighbouring layers.For weight updates between each pair of neighbouring layers, CNNs use the Bacak-propogation.Scientific instruments also aid in the swift conclusion of the case.



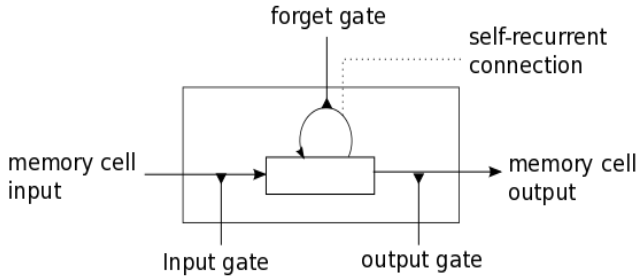
3. Recurrent Neural Network

The reason RNNs are referred to as recurrent is because they carry out the same job for each element in a sequence, with the results depending on the results of the prior calculations. The information about previous calculations is stored in the "memory" of RNNs.



4. Long-Term Memory Capacity

In "Very Deep Learning" tasks, which call for memories of past events that occurred thousands or even millions of discrete time steps ago, LSTM is able to learn the relevant information.Long delay signals may be processed by LSTM, and signals with a mixture of low- and high-frequency components can also be processed by LSTM.



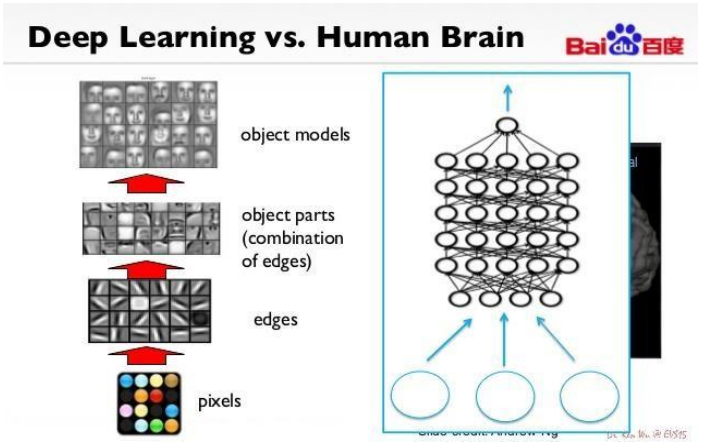


Fig: Deep learning vs. Human Brain

Fig: In Crime Investigation in Narco Analysis

5. CONCLUSIONS

The low maturity of Deep Learning and its applications such The low maturity of deep learning and its applications, such as huge deep neural networks that excel in speech recognition, object detection in the visual domain, and other language-related tasks, call for substantial future study. However, if the emerging architectures are inventive enough, deep learning in the future has limitless potential, including autonomous automobiles, robots exploring the cosmos, and what not. Much more sophisticated methods are used in neural networks. In addition to backpropagation, there are numerous alternative algorithms. When it comes to a certain class of tasks, like image identification, neural networks do extremely well. The neural network algorithms require a significant amount of computation. There has been a change in the pattern of crime in this rapidly evolving technological society. Therefore, it is essential to enhance inquiry patterns in such cases in order to assure justice. One such technique that may be very helpful in the inquiry is narco-analysis, however there is a lot of controversy around its acceptability and there are not even adequate rules in place to deal with scientific instruments.

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