REVERSE ENGINEERING FOR ARTIFICIAL INTELLIGENCE TO PREVENT HEALTHCARE OF HUMAN BRAIN

BIKASH CHANDRA SAHA[1*], VIJAYARANGAM.S[2], SHIVAM MAHAJAN[3], TARANJOT SINGH[4], CHARU DHINGRA[5] AND RAGAVI.P[6]

1: Assistant Professor, Department of Electrical and Electronics Engineering, Cambridge Institute of Technology, Ranchi, Ranchi-835103, Jharkhand.

2: Associate Professor in Computer Science and Engineering at Sri Indu College of Engineering and Technology, Sheriguda, Ibrahimpatnam, Rengareddy District, Hyderabad, India

3: MBBS Student at Dayanand Medical College and Hospital, Ludhiana-141006 Punjab, India

4: Research Scholar in Physics at Dav university, Jalandhar, Punjab, India

5: Software Engineer at Maven wave partners India

6: Assistant Professor in Electronics and Communication Engineering at Velalar College of Engineering and Technology, Erode, Tamilnadu, India

*Corresponding Author: Bikash Chandra Saha; E Mail: bcsaha1012@gmail.com

ABSTRACT

The world's first artificial brain is known as the "Blue Brain." A virtual machine is a computer that can perform the functions of a nervous system with Artificial Intelligence. Reverse engineering is a popular method of simulating the human mind on a molecular basis. Therapy of cognitive impairment, academic interest in awareness and the human healthcare condition, a lower part method to creating thinking machines, and archives of all neuroscience research findings and associated previous tales are the 4 major motives behind its Blue Brain Science. Information collection, modelling, and display of outcomes are the three main phases in creating a virtual brain. The Blue Brain science aims to collect all current

brain information, improve the global reverse engineering benefit of cloud computing, and develop a comprehensive conceptual healthcare framework prevent the human brain from radioactivity.

INTRODUCTION

The Blue Brain Study is thought to be the one that investigates real "Artificial Intelligence" through data manipulation, as well as the endeavour to backward design a human mind. Virtual Brain's perception will help illuminate certain forms of human identification. The Blue Brain Initiative seeks to create a complete computer program of a functional brain that may be used to mimic medication therapy and other cerebral cortex issues. The IBM Blue Gene supercomputer was initially utilized by the Blue Strategies Aimed, after which the moniker Blues Mind became coined.

This can be accomplished to use a computer, which would be the quickest but also the most costly. Supercomputers are used for particular jobs that need a large set of statistical calculations, such as weather prediction. Machine Learning is the backbone of Blue Mind, a science that creates intelligent devices and distributes smart machines. Its study focuses on knowledge, education, thinking, organization, interaction, and vision. Its most comprehensive solutions include cognitive computing, statistical methods, and classical symbolic AI.

Figure 1: Image of a Supercomputer

Related Works

Intelligence is a gift that is bestowed on those who are born. Those who possess this characteristic believe that they can think at a level that others cannot. Everywhere and in every profession, intelligence is required.

For the benefit of Human Society, the era in which we now live requires educated brains. Intelligence is restricted to the body, and after burial, the smart brain ceases to function.

As a result, a virtual brain is an important answer. The artificial brain causes the mind and mind to continue even after a person has died. People desire to live in a machine as a program to avoid having to recall a large quantity of information. The invention of microscopy heralds a larger technological leap forward. The electron microscope has a restricted result from large for studying mental faculties, but the nanotech lens produces brain biological samples in a couple of moments. A detailed model of a small area of a brain's construction was made a molecule by component, and numerous findings of great intelligence were recreated.

Proposed Solutions

The Blue Brain Program main needs:

- An interest in awareness and the human brain from a scientific point of view.
- Creating a reasoning engine from the ground up.
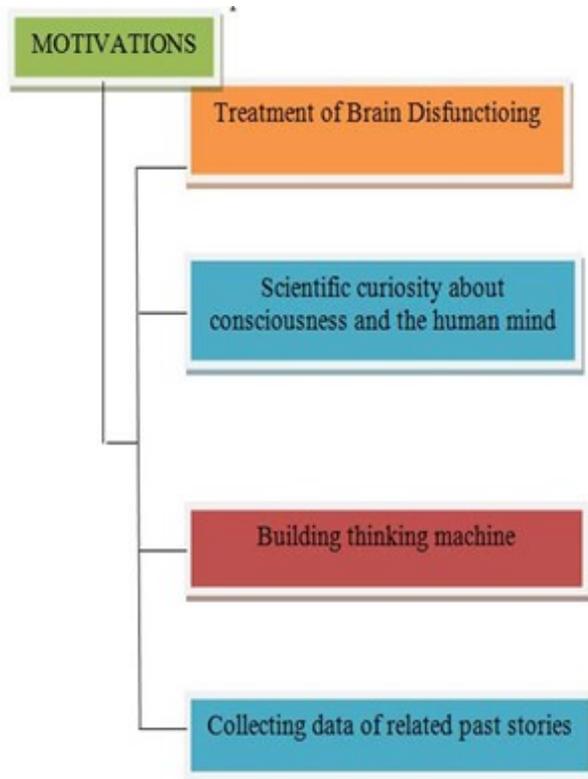- A document containing all neuroscience study results and associated news items.

Figure 2: Blue Brain Flow chart

Today, a significant number of people suffering from brain illnesses, as well as the battle against other illnesses and also the development of effective therapies are at an all-time high. It is extremely difficult to examine a living brain in practice. As a result, a virtual mind makes it conceivable, as well as providing a reason for the research.

Needs for Operating Systems

• A supercomputer with a high-performance CPU and even a massive storage capacity.

• A frequently requires interconnections.

• A program that converts electrical pulses from the human mind to computer-readable signals.

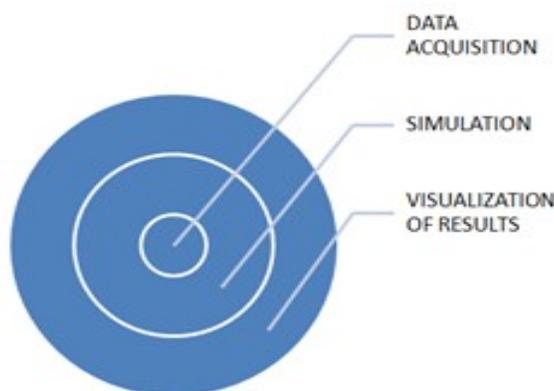**The Primary Stage in Building a Digital Memory**

Figure 3: Steps to build Blue Brain

Information Gathering

Researchers have to examine and catalog various areas of the brain in Data Acquisition. It entails examining skull segments underneath microscopy and determining the structure and action potential of neurons. Topology is a field of histology is the study of organisms' composition and form, as well as their unique physical features. Different disciplines of morphological include comparison morphological, operational morphological characteristics, and laboratory morphological characteristics.

Endocrinology activity is a non-invasive process that assesses the electrical signals and conducting routes of the pulse by testing its electrical transport network. It allows 12 live neurons to ever be patched and unique brain signals captured at the same time. The various things through which cells were typed include their position inside the brain and the population size. Combining such findings via numerical modelling yields the shape, functioning, and placement of neurons. These methods are used to create physiologically three-dimensional virtual cells that may be used in simulations.
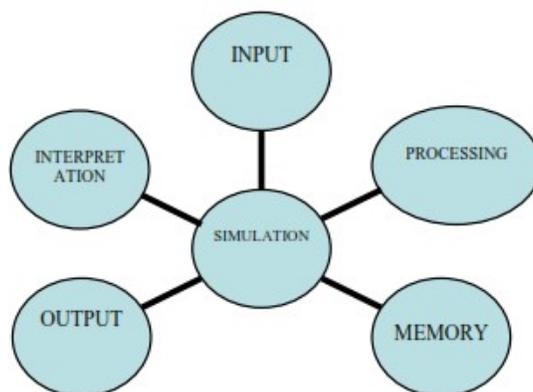
Simulation

Figure 4: Simulation work

➢ **INPUT**

The brain is responsible for data communication in the brain's spinal cord. Photoreceptor neurons transmit information to human bodies. Photoreceptor neurons send forth electrical signals, which are picked up by synapses. Furthermore, electric impulses are controlled by the brain by neurons via silicon chips in neural networks.

➢ **INTERPRETATION**

Electric impulses between cells are received by the mind and processed by records. The varying numbers in such entries will be used to achieve various states of mind.

➢ **OUTPUT**

The transmitter processes electrical pulses indicating reactions based on the statuses of the records, which are then acquired by the receptor neurons to react. Whether sense cell wherein area of the bodies will get it is controlled by

the condition of the brain neuron just a moment.

➢ **MEMORY**

Specific transistors in the brains may persistently retain some data (states). The mind sees such countries based on current requirements, allowing everyone to acquire past information. To accomplish so, scientists require the cells to provide a clear vision of the Mind's State continuously.

➢ **PROCESSING**

The machine can conduct calculations by utilizing certain saved data. Our brain circuit performs logical and arithmetic computations. To create the result, formal education and current input are combined.

Outcomes Mapping

Conducting the Blue Brain simulator generates large volumes of information. Single-cell studies should be done millions of times. Data may be analyzed on parallel processing computers, which are used to

generate server-side studies to validate the observations, online analysis during simulation. An essential element of the study is direct observation of the circuitry (given the geometric complexity of the column). It is extremely useful for quickly verifying single-cell activities by matching input parameters to morphogenesis. The Blue Genes have also been transformed into a 3D visual depiction of the line to provide an interactive display.

The display of the cells is a difficult operation since a sequence of ten thousand neurons grouped in elevated meshes stands for around one trillion vertices, requiring several GB of information management. Visible cross facial makes it easy to rapidly identify such regions and also to display brain activity, a visualization could also be utilized to examine in-depth utilizing additional simulation.

Brain Sharing

The far more potential element for upload is nanomachines, which are very microscopic robots. Emerging technology areas create devices or robotics with parts that are virtually upon on nanoscale size. Since these monoids are just so tiny, they can pass via our systemic circulation. Nanomachines, which are tiny robotics, are utilized to do the upload.

They would evaluate the function and architecture of our nervous system by going into the spinal and brains. Machines will have an interaction that is as similar to our thinking as we'd like whilst staying maintaining the technique employed. The nanomachines' extra purpose would be to thoroughly examine the anatomy of the mind, providing a thorough printout of interconnections. Furthermore, this data assists the computer in doing human-like tasks. Finally, the stored data inside the human institution would be transferred into the machine via nanomachines.

Major benefits

- Outcomes can be achieved without the use of human interaction.
- A person's smart brain may be utilised also after their demise.
- Mammal thoughts can be traced.
- Straight feed modeling allows even for the blind to hear.
- A person's insanity can be cured by uploading the human brain information.

Implications Which Are Drawback

An individual can get a computer hooked. With many benefits, there are some drawbacks to consider.

- Other people's technical knowledge could be exploited and used against us.
- People may try out new technologies which might present a severe hazard.

Conclusions and Future enhancement

A few of our brilliant scientists already have built and modelled the first version of a Blue Brain, which contains about 1000 cells; the choice of its deep characteristics and circuits effectiveness takes some time. Through evaluating diverse sets of data acquired from previous experiences and also fresh pieces, researchers may strive for machine learning of nucleotide contains with their performing, disfunctioning, and influence on some other part. The length of time required to create a suitably detailed model is determined by the scope of the study as well as the level of information collected. With the beginning of artificial intelligence research, the modern age in cognitive neuroscience began to prevent the human brain from radioactivity. Essentially, modelling brains is not a difficult task, and it is expected to be completed in the coming years. It might be accomplished through empirical research on our datasets, and this is a move toward actuality.

REFERENCES

[1] The Blue brain project, Hill, Sean: Markham Henry, International conference of IEEE 2008.

[2] Henry Markram, "The Blue Brain Project", Nature Reviews Neuroscience, 7:153-160, 2006 February.

[3] Reconstructing the Heart of Mammalian Intelligence, Henry Mark ram's lecture, March 4, 2008

[4] Henry Mark ram builds a brain in supercomputer, TED conference July 2009.

[5] Indian start-up to help copy your brain in computers, Silicon India 2009

[6] Deepthi T, Balamurugan K, Uthayakumar M. Simulation and experimental analysis on cast metal runs behaviour rate at different gating models. International Journal of Engineering Systems Modelling and Simulation. 2021;12(2-3):156-64.

[7] Devaraj S, Malkapuram R, Singaravel B. Performance analysis of micro textured cutting insert design parameters on machining of Al-MMC in turning process. International Journal of Lightweight Materials and Manufacture. 2021 Jun 1;4(2):210-7

[8] Garigipati RK, Malkapuram R. Characterization of novel composites from polybenzoxazine and granite powder. SN Applied Sciences. 2020 Sep;2(9):1-9.

[9] Yarlagaddaa J, Malkapuram R. Influence of carbon nanotubes/graphene nanoparticles on the mechanical and morphological properties of glass woven fabric epoxy composites. INCAS Bulletin. 2020 Oct 1;12(4):209-18.

[10] Rama Krishna M, Tej Kumar KR, DurgaSukumar G. Antireflection nanocomposite coating on PV panel to improve power at maximum power point. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. 2018 Oct 18;40(20):2407-14.

[11] Yarlagaddaa J, Malkapuram R, Balamurugan K. Machining Studies on Various Ply Orientations of Glass Fiber Composite. InAdvances in Industrial Automation and Smart Manufacturing 2021 (pp. 753-769). Springer, Singapore.

[12] Ezhilarasi, T. P., Kumar, N. S., Latchoumi, T. P., & Balayesu, N. (2021). A Secure Data Sharing Using IDSS CP-ABE in Cloud Storage. In Advances in Industrial Automation and Smart Manufacturing (pp. 1073-1085). Springer, Singapore.

[13] Mishra, P., Jimmy, L., Ogunmola, G. A., Phu, T. V., Jayanthiladevi, A., & Latchoumi, T. P. (2020, December). Hydroponics cultivation using real time iot measurement system. In Journal of Physics: Conference Series (Vol. 1712, No. 1, p. 012040). IOP Publishing.

[14] Sridharan, K., & Sivakumar, P. (2018). A systematic review on techniques of feature selection and classification for text mining. International Journal of Business Information Systems, 28(4), 504-518.

[15] Vemuri, R. K., Reddy, P. C. S., Kumar, B. P., Ravi, J., Sharma, S., & Ponnusamy, S. (2021). Deep learning based remote sensing technique for environmental parameter retrieval and data fusion from physical models. Arabian Journal of Geosciences, 14(13), 1-10.