

## **REPORT ABOUT NEURAL NETWORKS AS PARADIGM TO SIMULATE HUMAN INTELLIGENCE**

a) What led Geoffrey Hinton to believe in neural networks as the right path to understanding and simulating human intelligence?

Geoffrey Hinton believed that neural networks could model human intelligence because their structure resembles how the brain works. He was inspired by Donald Hebb's ideas, which described how connections between neurons strengthen through joint activity. Hinton thought machines could process data and identify patterns in the same way humans do, discovering categories of information without explicit instructions. His conviction was also driven by the belief that learning from examples could solve problems too vague or complex for traditional programming.

b) How physics fundamentals help Geoffrey Hinton to obtain the necessary insights to develop his research and discoveries related with Neural Nets?

Physics provided Hinton with tools to analyze complex systems composed of numerous interacting components. For instance, the Boltzmann equation from statistical physics became the foundation for optimization in his "Boltzmann machine." Hinton used principles of energy and probability to describe the behavior of neural networks, enabling him to build effective models for data processing. These methods from physics helped formalize the training process of neural networks and improve their ability to uncover hidden patterns in data.