



# CLASS 1: INTRODUCTION TO DEEP LEARNING

## PART 01

Deep learning, a subset of machine learning, utilizes neural networks with many layers (hence "deep") to analyze various forms of data. In this session, we will explore the fundamental concepts of deep learning, its significance in modern technology, and its applications across various industries.

### What is Deep Learning?

Deep learning involves training large neural networks to recognize patterns in data. It automates the extraction of abstract features, making it effective for tasks ranging from voice recognition to language translation.

### Key Concepts in Deep Learning:

**Neural Networks:** The backbone of deep learning, these networks mimic the human brain's structure and function, enabling the machine to learn from data.

**Activation Functions:** These functions help decide whether a neuron should be activated or not, influencing the network's ability to learn complex patterns.

**Supervised Learning:** This type of learning involves training a model on a labeled dataset, where the correct answers are known.

**Unsupervised Learning:** Here, the model learns through the identification of patterns in data without the need for labeled outcomes.



### Applications of Deep Learning

From improving computer vision systems to optimizing complex decision-making processes, deep learning has numerous applications. Industries like healthcare, automotive, and finance have all benefited from its predictive power and automation capabilities.



### Conclusion

As we wrap up our introductory session, it's clear that deep learning will continue to be a significant driver of innovation in technology. Understanding these fundamentals sets the stage for more advanced exploration into various deep learning architectures and their real-world applications.