🧠 CLASS 1: ACTIVATION FUNCTIONS PART 3

Activation functions in neural networks are critical for adding non-linearity to the model, making it possible to learn and perform more complex tasks. This session will explore the three common activation functions: Sigmoid, Tanh, and ReLU.

🔍 Understanding Activation Functions

Activation functions determine whether a neuron should be activated or not, helping to normalize the output of each neuron to a range between 0 and 1, or -1 and 1, depending on the function.

Common Activation Functions:

Sigmoid: The sigmoid function outputs values between 0 and 1, making it especially useful for models where we need to predict probabilities that sum to one.

Tanh: Tanh, or hyperbolic tangent function, outputs values between -1 and 1, providing a scaled output which can lead to better performance in some models.

ReLU (Rectified Linear Unit): ReLU is a linear function that outputs the input directly if it is positive; otherwise, it will output zero. It has become the default activation function for many types of neural networks because it reduces the likelihood of the vanishing gradient problem.

📊 Applications and Effects

Each activation function has its specific use case, depending on the nature of the problem and the required computational efficiency. Understanding when to use each can significantly impact the performance of the neural network.

📝 Conclusion

Today's discussion on activation functions highlights their importance in neural network architecture. As we move forward, we'll see how these functions integrate into more complex networks and solve specific tasks in areas such as computer vision and natural language processing.