What are Neural Networks?

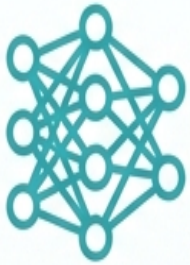
- Machine-learning model inspired by the human brain
- Composed of layers of interconnected neurons
- Processes and transmits information

Structure of Neural Networks

Input Layer

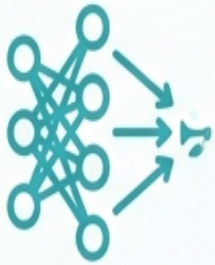
– receives data

Hidden Layer



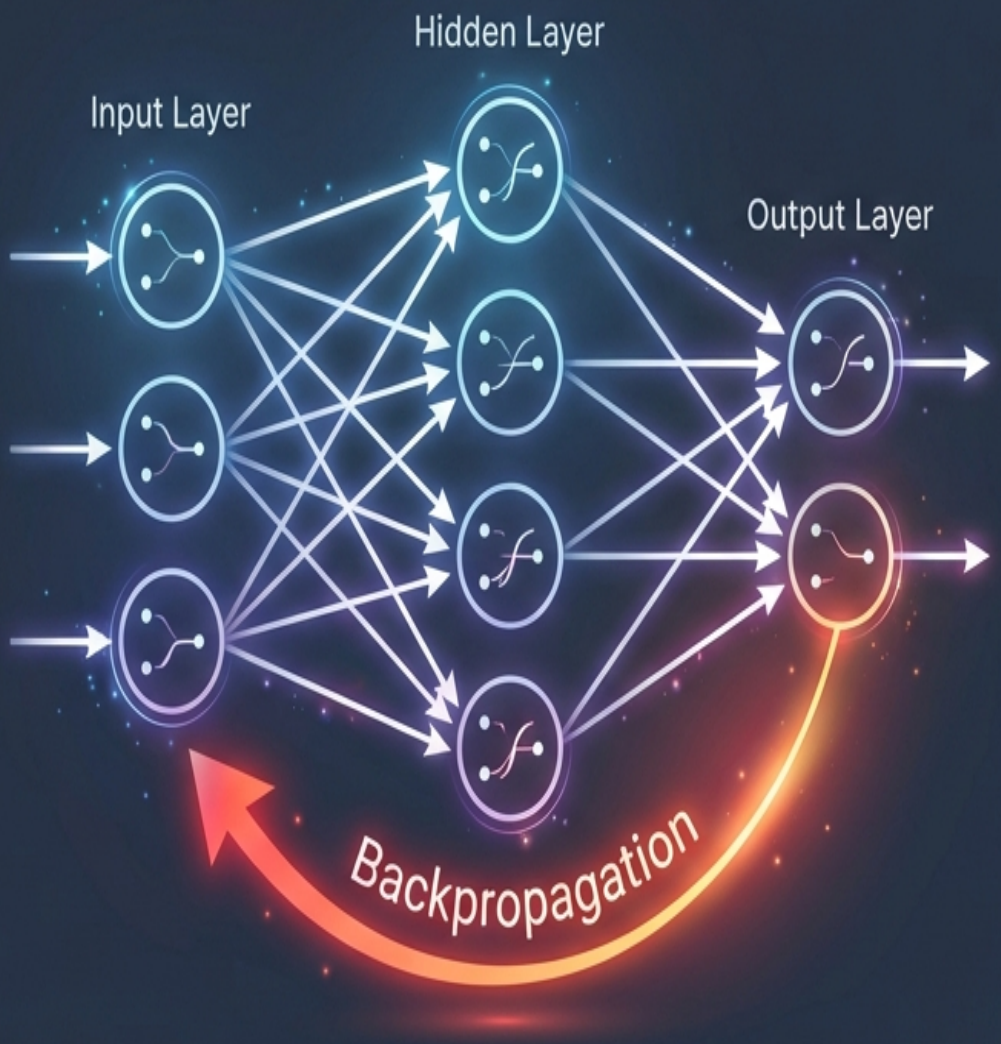
– processes & decides

Output Layer



– produces result

How Neural Networks Work



- Nodes apply weights & activation functions
- Forward pass produces output
- Backpropagation adjusts weights to minimize error

Benefits & Limitations

- Excellent pattern recognition (e.g., images, speech)
- Solves complex problems (games, optimization)

- Overfitting – too specific to training data
- Long training times for large datasets

Conclusion

- Neural networks are powerful ML tools
- Built from **layered nodes** that learn via backpropagation
- Beware of overfitting and training time