

Types of Neural Networks

Exploring different architectures for various data types and applications





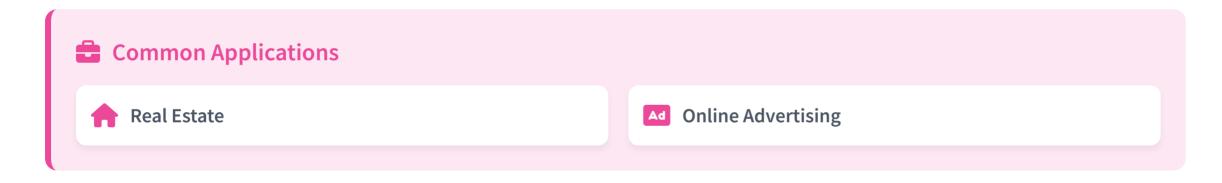






器 Standard Neural Networks

Ideal for structured data applications





Data Type

Suitable for handling structured data that is relatively simple

EXECUTE Convolutional Neural Networks

Specialized for image processing



CNNs are **excellent for handling images** because they can recognize patterns and features within them



Edge Detection

Identifies boundaries and contours in images



Shape Recognition

Detects geometric patterns and structures



Feature Extraction

Automatically learns important visual features

Sequential Data

Data with temporal elements

i What is Sequential Data?

Data that has a **temporal element** where order matters



Unfolds over time, making it a **one-dimensional time series**

A Language

Characters or words that **follow one another sequentially** (English, Chinese, etc.)

C Recurrent Neural Networks

Processing sequential information

Sequential Data Processing

RNNs can handle information in **sequence** while maintaining **temporal context**



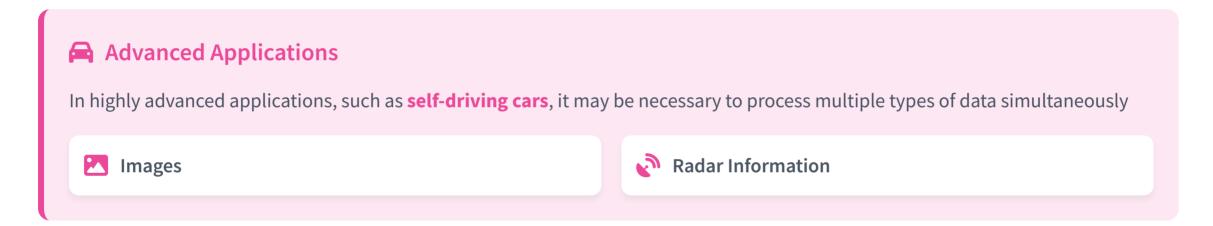
Long Short-Term Memory networks improve performance on **long sequences**



Gated Recurrent Units handle **complex sequences** with simplified architecture

Hybrid Networks

Processing multiple data types simultaneously





Combining CNNs for image processing with other methods for handling different sensory data



Making the network more **specialized** and capable of managing all inputs effectively