

Evolution From Rule-Based Systems to LLMs

Rule-Based

1970s - 1990s



Technology:

Expert systems
Decision trees
If-then rules

Limitation:

Cannot handle uncertainty

Statistical ML

2000s - 2010s



Technology:

SVM, Random Forest, Naive Bayes

Limitation:

Feature engineering required

Deep Learning

2010s - 2020



Technology:

CNN, RNN
LSTM, Attention mechanisms

Limitation:

*Task-specific
Large labeled data*

Large LLMs

2020s - Present



Technology:

Transformers
Self-attention
Pre-train + Fine-tune

Strength:

*Few-shot learning
Broad knowledge*

