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