

Domain Adaptation

Addresses distribution shift between training (source) and test (target) domains

Domain Distribution Shift



Source Domain

Training data distribution

Labeled data available



Distribution Shift



Target Domain

Test data distribution

Limited/no labels

Example Scenario

Train on synthetic data → Test on real data

Adaptation Techniques

Domain Adversarial Training

Self-Training

Pseudo-Labeling



Learn domain-invariant representations



Important for real-world deployment