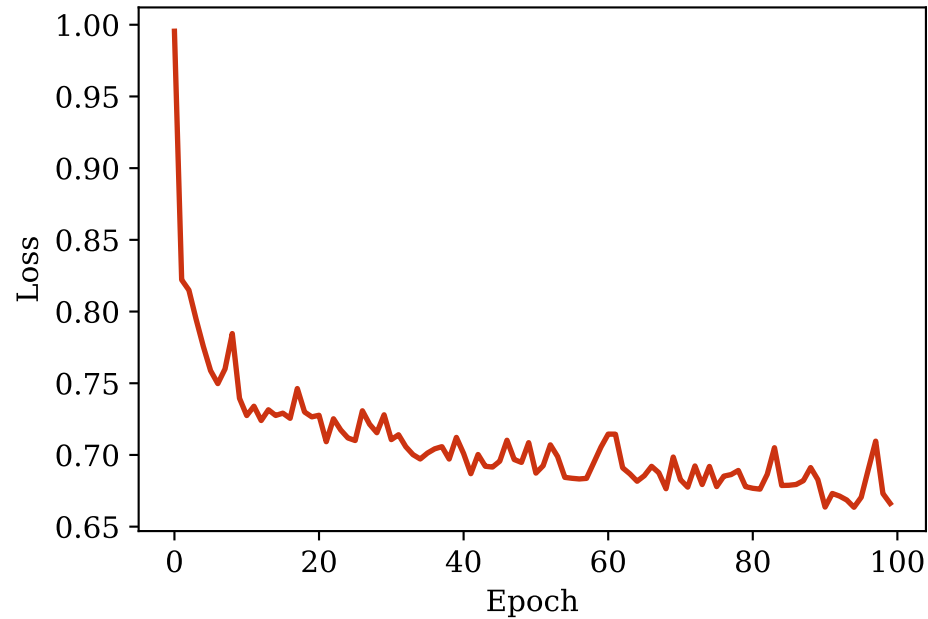
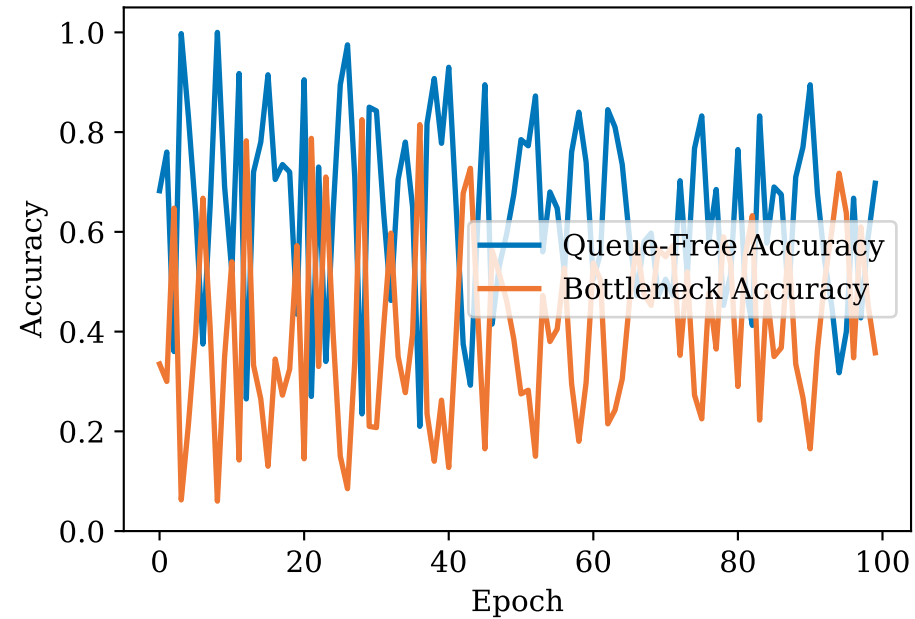


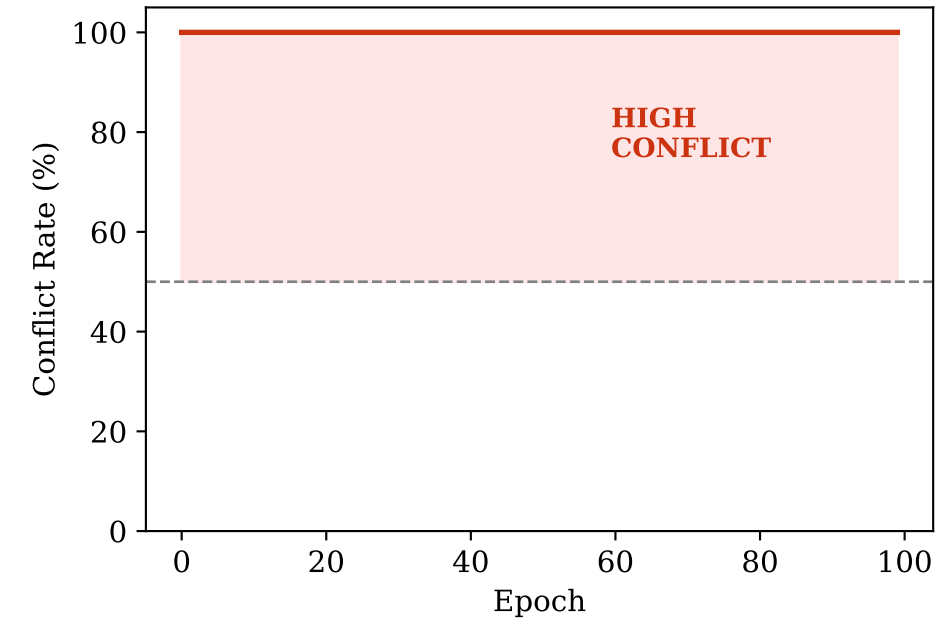
**(a) Training Loss
(Mixed QF + BN Data)**



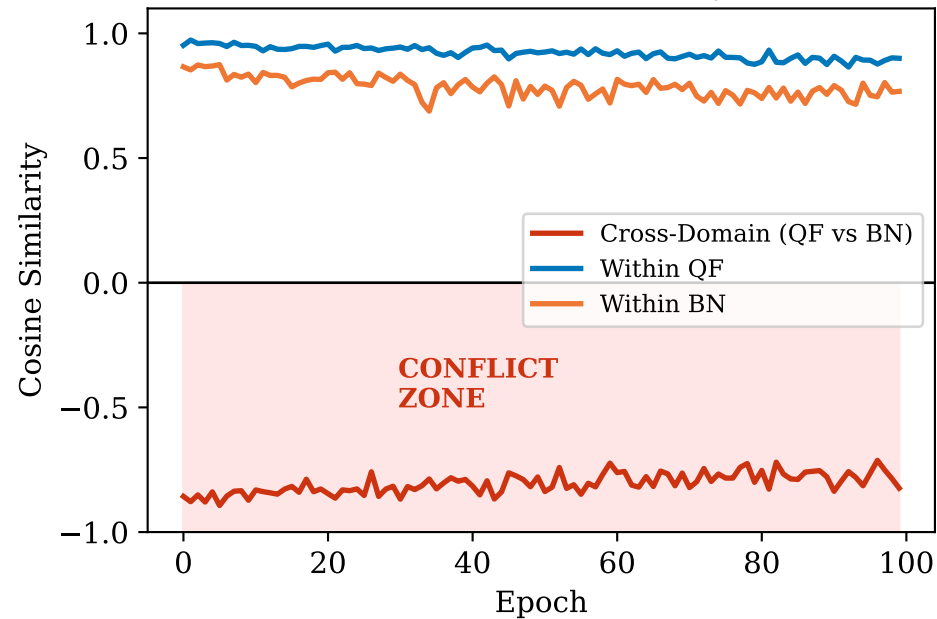
(b) Performance on Each Regime



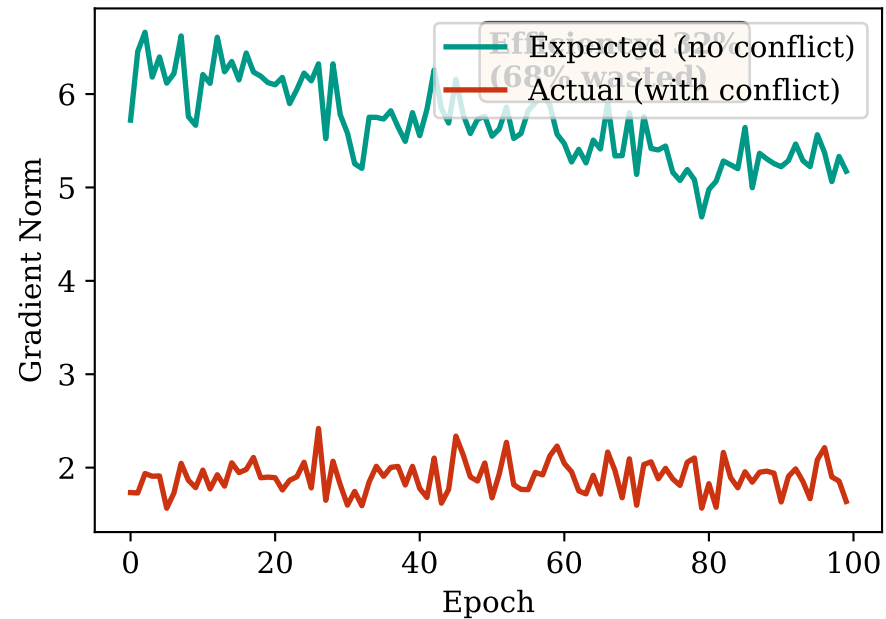
**(c) Cross-Domain Conflict Rate
(QF vs BN in each batch)**



**(d) Within-Domain vs Cross-Domain
Gradient Similarity**



(e) Gradient Cancellation Effect



GRADIENT SIMILARITY COMPARISON

Cross-Domain (QF vs BN):

- Avg Similarity: -0.805
- Conflict Rate: 100%

Within Queue-Free:

- Avg Similarity: +0.923

Within Bottleneck:

- Avg Similarity: +0.787

CONCLUSION:

Cross-domain: NEGATIVE similarity
Within-domain: POSITIVE similarity

Conflict is DOMAIN-SPECIFIC,
not random noise!