This section contains supplementary experiments, which may have slight differences from the data obtained in previous experiments.

Significance Test Results for AUC:

DSAE\_RF vs DSMDA: p-value = 0.008369213675800614

DSAE\_RF vs GPUDMDA: p-value = 0.11757795460043659

DSAE\_RF vs KGNMDA: p-value = 0.18006234437070967

DSAE\_RF vs SAELGMDA: p-value = 0.1834516100692465

DSMDA vs DSAE\_RF: p-value = 0.008369213675800614

DSMDA vs GPUDMDA: p-value = 0.5412311718123332

DSMDA vs KGNMDA: p-value = 0.028530577371290618

DSMDA vs SAELGMDA: p-value = 0.09108222207305362

GPUDMDA vs DSAE\_RF: p-value = 0.11757795460043659

GPUDMDA vs DSMDA: p-value = 0.5412311718123332

GPUDMDA vs KGNMDA: p-value = 0.06874405153598201

GPUDMDA vs SAELGMDA: p-value = 0.16013674587598084

KGNMDA vs DSAE\_RF: p-value = 0.18006234437070967

KGNMDA vs DSMDA: p-value = 0.028530577371290618

KGNMDA vs GPUDMDA: p-value = 0.06874405153598201

KGNMDA vs SAELGMDA: p-value = 0.2700564329881068

SAELGMDA vs DSAE\_RF: p-value = 0.1834516100692465

SAELGMDA vs DSMDA: p-value = 0.09108222207305362

SAELGMDA vs GPUDMDA: p-value = 0.16013674587598084

SAELGMDA vs KGNMDA: p-value = 0.2700564329881068

Confidence Intervals for AUC:

DSAE\_RF: Mean = 0.93 ± 0.01 (95% CI: 0.92-0.93)

DSMDA: Mean = 0.96 ± 0.02 (95% CI: 0.94-0.98)

GPUDMDA: Mean = 0.95 ± 0.03 (95% CI: 0.92-0.98)

KGNMDA: Mean = 0.91 ± 0.03 (95% CI: 0.88-0.94)

SAELGMDA: Mean = 0.81 ± 0.20 (95% CI: 0.61-1.01)

Significance Test Results for AUPR:

DSAE\_RF vs DSMDA: p-value = 0.06571525248429695

DSAE\_RF vs GPUDMDA: p-value = 0.07618572632779097

DSAE\_RF vs KGNMDA: p-value = 0.7082059433499399

DSAE\_RF vs SAELGMDA: p-value = 9.061374325637343e-05

DSMDA vs DSAE\_RF: p-value = 0.06571525248429695

DSMDA vs GPUDMDA: p-value = 0.05424688116582124

DSMDA vs KGNMDA: p-value = 0.1874869523948552

DSMDA vs SAELGMDA: p-value = 8.403567815431514e-05

GPUDMDA vs DSAE\_RF: p-value = 0.07618572632779097

GPUDMDA vs DSMDA: p-value = 0.05424688116582124

GPUDMDA vs KGNMDA: p-value = 0.07690978772968787

GPUDMDA vs SAELGMDA: p-value = 0.00041009662351091124

KGNMDA vs DSAE\_RF: p-value = 0.7082059433499399

KGNMDA vs DSMDA: p-value = 0.1874869523948552

KGNMDA vs GPUDMDA: p-value = 0.07690978772968787

KGNMDA vs SAELGMDA: p-value = 0.00015129504990515273

SAELGMDA vs DSAE\_RF: p-value = 9.061374325637343e-05

SAELGMDA vs DSMDA: p-value = 8.403567815431514e-05

SAELGMDA vs GPUDMDA: p-value = 0.00041009662351091124

SAELGMDA vs KGNMDA: p-value = 0.00015129504990515273

Confidence Intervals for AUPR:

DSAE\_RF: Mean = 0.92 ± 0.01 (95% CI: 0.91-0.94)

DSMDA: Mean = 0.95 ± 0.03 (95% CI: 0.92-0.99)

GPUDMDA: Mean = 0.85 ± 0.08 (95% CI: 0.76-0.93)

KGNMDA: Mean = 0.92 ± 0.03 (95% CI: 0.89-0.95)

SAELGMDA: Mean = 0.20 ± 0.13 (95% CI: 0.07-0.33)

Significance Test Results for F1:

DSAE\_RF vs DSMDA: p-value = 0.06802614300091123

DSAE\_RF vs GPUDMDA: p-value = 6.406032254579787e-05

DSAE\_RF vs KGNMDA: p-value = 0.6635229256523157

DSAE\_RF vs SAELGMDA: p-value = 3.4503203033503765e-05

DSMDA vs DSAE\_RF: p-value = 0.06802614300091123

DSMDA vs GPUDMDA: p-value = 0.0001658875891793342

DSMDA vs KGNMDA: p-value = 0.12496533312850318

DSMDA vs SAELGMDA: p-value = 4.838197062962858e-05

GPUDMDA vs DSAE\_RF: p-value = 6.406032254579787e-05

GPUDMDA vs DSMDA: p-value = 0.0001658875891793342

GPUDMDA vs KGNMDA: p-value = 7.103917186017499e-05

GPUDMDA vs SAELGMDA: p-value = 0.0732625898378222

KGNMDA vs DSAE\_RF: p-value = 0.6635229256523157

KGNMDA vs DSMDA: p-value = 0.12496533312850318

KGNMDA vs GPUDMDA: p-value = 7.103917186017499e-05

KGNMDA vs SAELGMDA: p-value = 6.59775357441661e-05

SAELGMDA vs DSAE\_RF: p-value = 3.4503203033503765e-05

SAELGMDA vs DSMDA: p-value = 4.838197062962858e-05

SAELGMDA vs GPUDMDA: p-value = 0.0732625898378222

SAELGMDA vs KGNMDA: p-value = 6.59775357441661e-05

Confidence Intervals for F1:

DSAE\_RF: Mean = 0.84 ± 0.02 (95% CI: 0.83-0.86)

DSMDA: Mean = 0.88 ± 0.04 (95% CI: 0.84-0.92)

GPUDMDA: Mean = 0.20 ± 0.11 (95% CI: 0.09-0.31)

KGNMDA: Mean = 0.84 ± 0.03 (95% CI: 0.81-0.87)

SAELGMDA: Mean = 0.12 ± 0.11 (95% CI: 0.02-0.23)

Significance Test Results for Accuracy:

DSAE\_RF vs DSMDA: p-value = 0.02559290942382288

DSAE\_RF vs GPUDMDA: p-value = 0.039715436923148155

DSAE\_RF vs KGNMDA: p-value = 0.7177381695245936

DSAE\_RF vs SAELGMDA: p-value = 0.044749910374865164

DSMDA vs DSAE\_RF: p-value = 0.02559290942382288

DSMDA vs GPUDMDA: p-value = 0.035914823571550285

DSMDA vs KGNMDA: p-value = 0.05863833976567745

DSMDA vs SAELGMDA: p-value = 0.31453361100330474

GPUDMDA vs DSAE\_RF: p-value = 0.039715436923148155

GPUDMDA vs DSMDA: p-value = 0.035914823571550285

GPUDMDA vs KGNMDA: p-value = 0.036160360729289576

GPUDMDA vs SAELGMDA: p-value = 0.0163281352019005

KGNMDA vs DSAE\_RF: p-value = 0.7177381695245936

KGNMDA vs DSMDA: p-value = 0.05863833976567745

KGNMDA vs GPUDMDA: p-value = 0.036160360729289576

KGNMDA vs SAELGMDA: p-value = 0.04400590594289431

SAELGMDA vs DSAE\_RF: p-value = 0.044749910374865164

SAELGMDA vs DSMDA: p-value = 0.31453361100330474

SAELGMDA vs GPUDMDA: p-value = 0.0163281352019005

SAELGMDA vs KGNMDA: p-value = 0.04400590594289431

Confidence Intervals for Accuracy:

DSAE\_RF: Mean = 0.84 ± 0.01 (95% CI: 0.83-0.85)

DSMDA: Mean = 0.89 ± 0.04 (95% CI: 0.86-0.93)

GPUDMDA: Mean = 0.55 ± 0.28 (95% CI: 0.27-0.83)

KGNMDA: Mean = 0.84 ± 0.03 (95% CI: 0.81-0.87)

SAELGMDA: Mean = 0.93 ± 0.09 (95% CI: 0.85-1.02)

Table with Confidence Intervals:

Model Metric Mean ± Margin (95% CI)

0 DSAE\_RF AUC 0.93 ± 0.01 (95% CI: 0.92-0.93)

1 DSMDA AUC 0.96 ± 0.02 (95% CI: 0.94-0.98)

2 GPUDMDA AUC 0.95 ± 0.03 (95% CI: 0.92-0.98)

3 KGNMDA AUC 0.91 ± 0.03 (95% CI: 0.88-0.94)

4 SAELGMDA AUC 0.81 ± 0.20 (95% CI: 0.61-1.01)

5 DSAE\_RF AUPR 0.92 ± 0.01 (95% CI: 0.91-0.94)

6 DSMDA AUPR 0.95 ± 0.03 (95% CI: 0.92-0.99)

7 GPUDMDA AUPR 0.85 ± 0.08 (95% CI: 0.76-0.93)

8 KGNMDA AUPR 0.92 ± 0.03 (95% CI: 0.89-0.95)

9 SAELGMDA AUPR 0.20 ± 0.13 (95% CI: 0.07-0.33)

10 DSAE\_RF F1 0.84 ± 0.02 (95% CI: 0.83-0.86)

11 DSMDA F1 0.88 ± 0.04 (95% CI: 0.84-0.92)

12 GPUDMDA F1 0.20 ± 0.11 (95% CI: 0.09-0.31)

13 KGNMDA F1 0.84 ± 0.03 (95% CI: 0.81-0.87)

14 SAELGMDA F1 0.12 ± 0.11 (95% CI: 0.02-0.23)

15 DSAE\_RF Accuracy 0.84 ± 0.01 (95% CI: 0.83-0.85)

16 DSMDA Accuracy 0.89 ± 0.04 (95% CI: 0.86-0.93)

17 GPUDMDA Accuracy 0.55 ± 0.28 (95% CI: 0.27-0.83)

18 KGNMDA Accuracy 0.84 ± 0.03 (95% CI: 0.81-0.87)

19 SAELGMDA Accuracy 0.93 ± 0.09 (95% CI: 0.85-1.02)