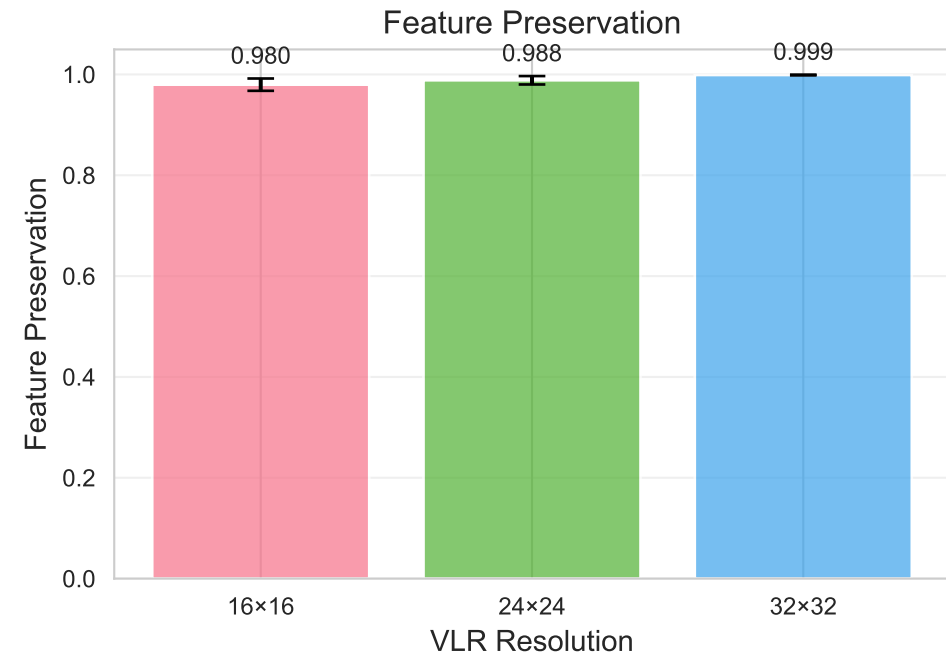
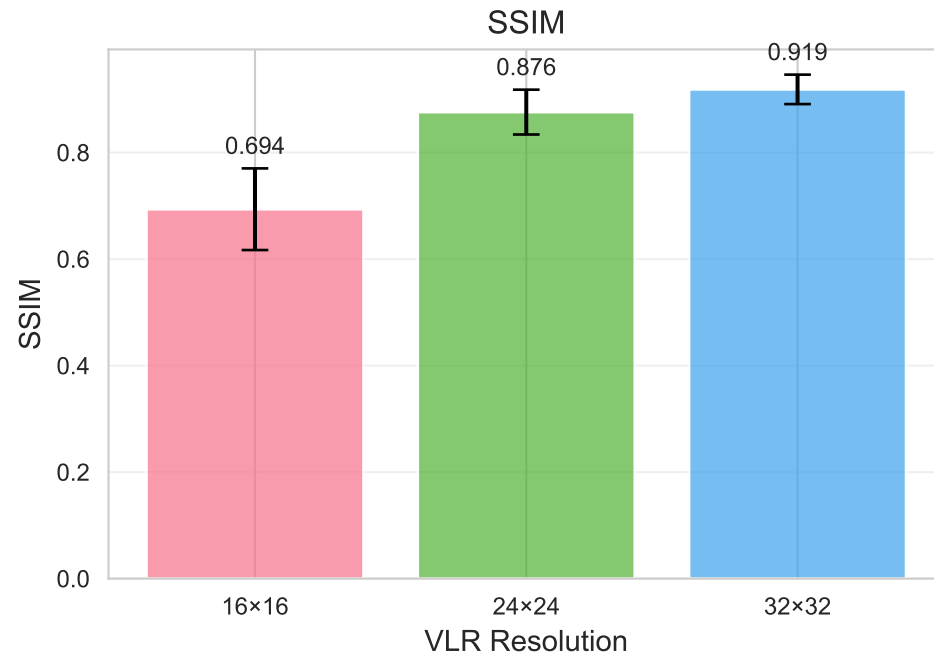
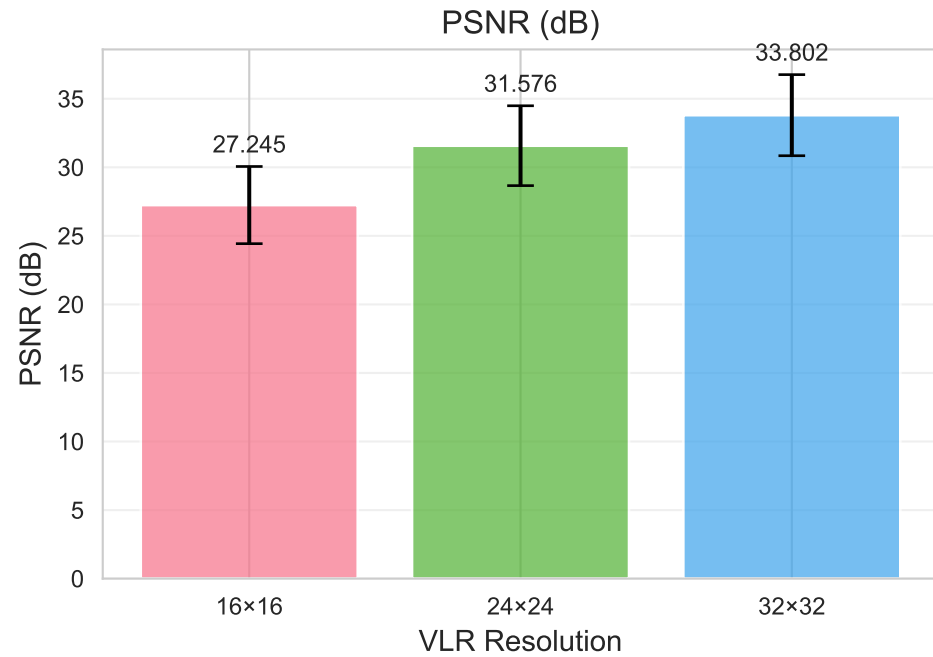


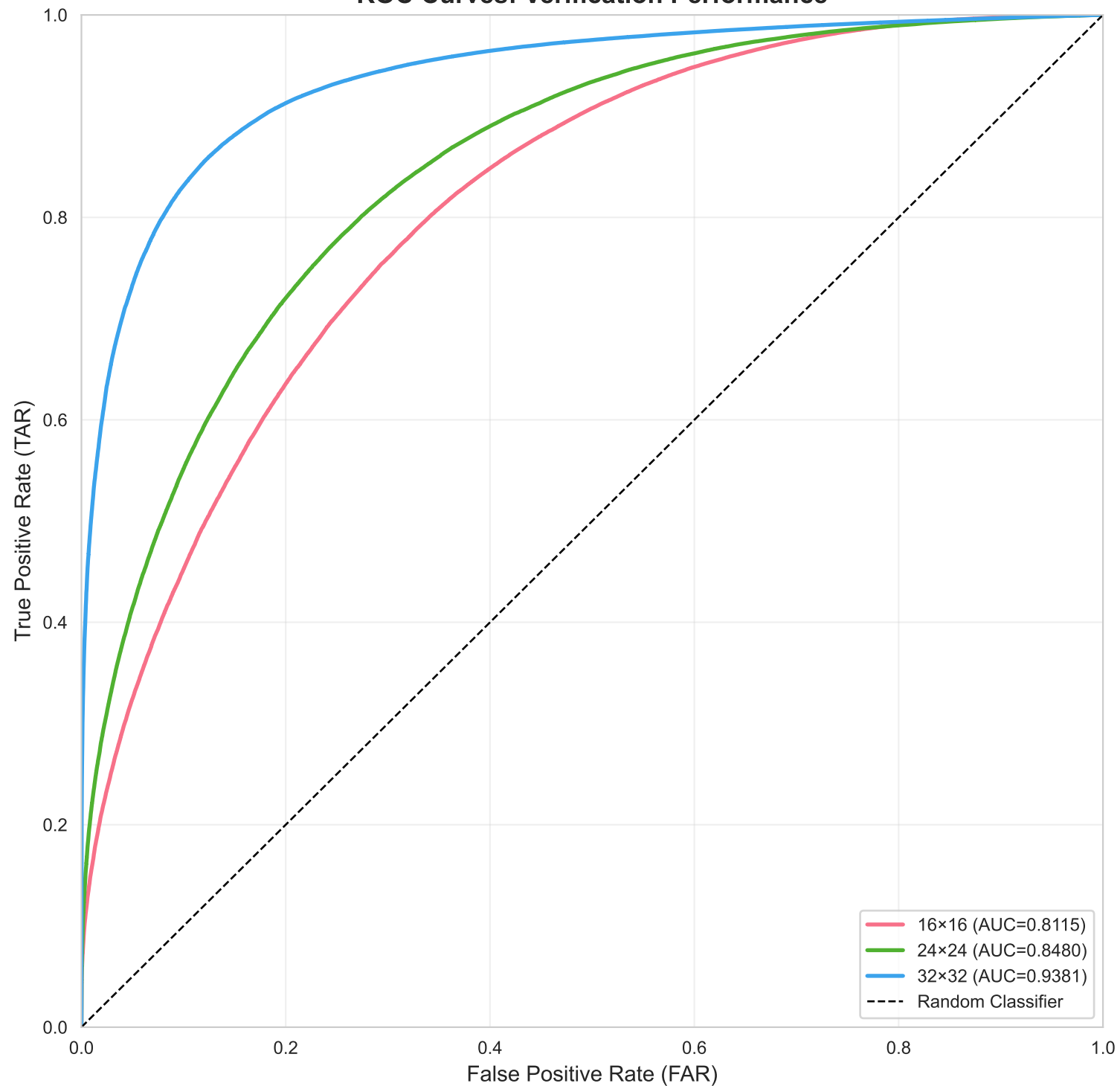
Comprehensive Evaluation Summary

Metric	16×16	24×24	32×32
PSNR (dB)	27.24 ± 2.81	31.58 ± 2.91	33.80 ± 2.96
SSIM	0.6936 ± 0.0767	0.8760 ± 0.0421	0.9187 ± 0.0277
Feature Preservation	0.9797 ± 0.0122	0.9884 ± 0.0083	0.9988 ± 0.0007
EER	0.2714	0.2368	0.1329
ROC AUC	0.8115	0.8480	0.9381
d' (separability)	1.067	1.269	1.536
TAR @ FAR=0.01%	0.0359	0.0356	0.1617
TAR @ FAR=0.1%	0.0671	0.0848	0.2927
TAR @ FAR=1%	0.1566	0.2179	0.5073
TAR @ FAR=10%	0.4524	0.5516	0.8311
1:1 Rank-1	0.5508	0.9256	1.0000
1:10 Rank-1	0.2397	0.4911	0.4795
1:100 Rank-1	0.0738	0.1510	0.1918
1:N Rank-1	0.0267	0.0209	0.0423
1:N Rank-5	0.0530	0.0680	0.0989
1:N Rank-10	0.0644	0.1163	0.1564
1:N Rank-20	0.0828	0.1927	0.2442

Image Quality Metrics Comparison

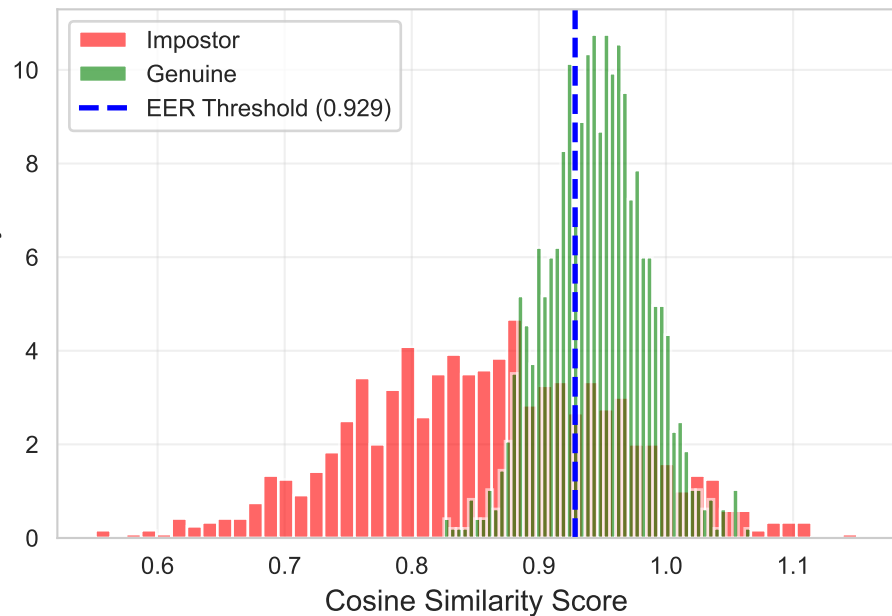


ROC Curves: Verification Performance

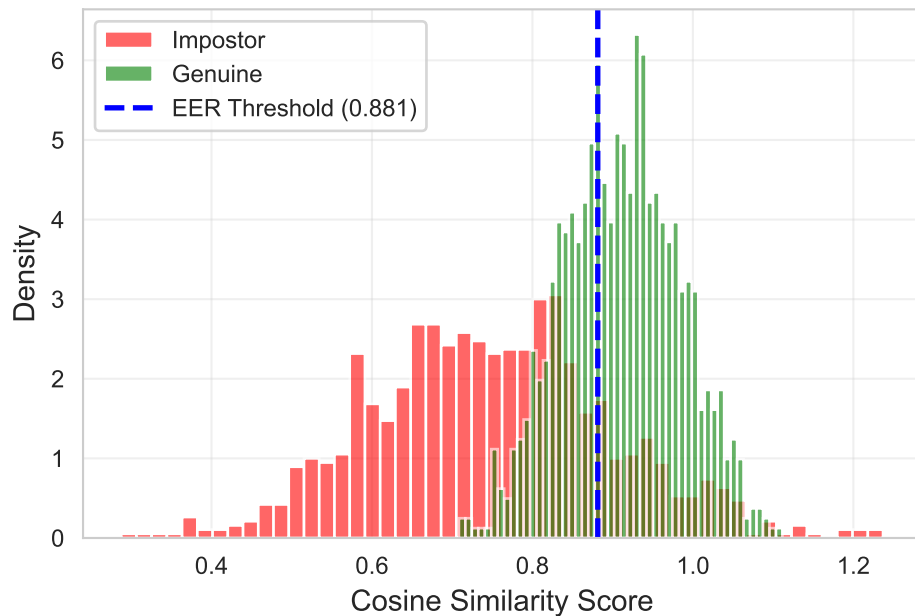


Genuine vs Impostor Score Distributions

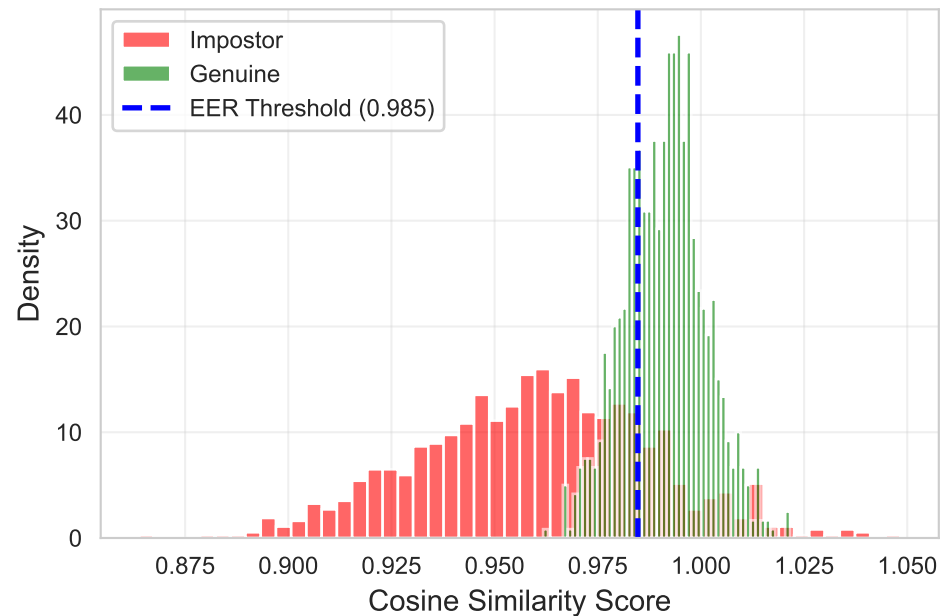
16×16 VLR



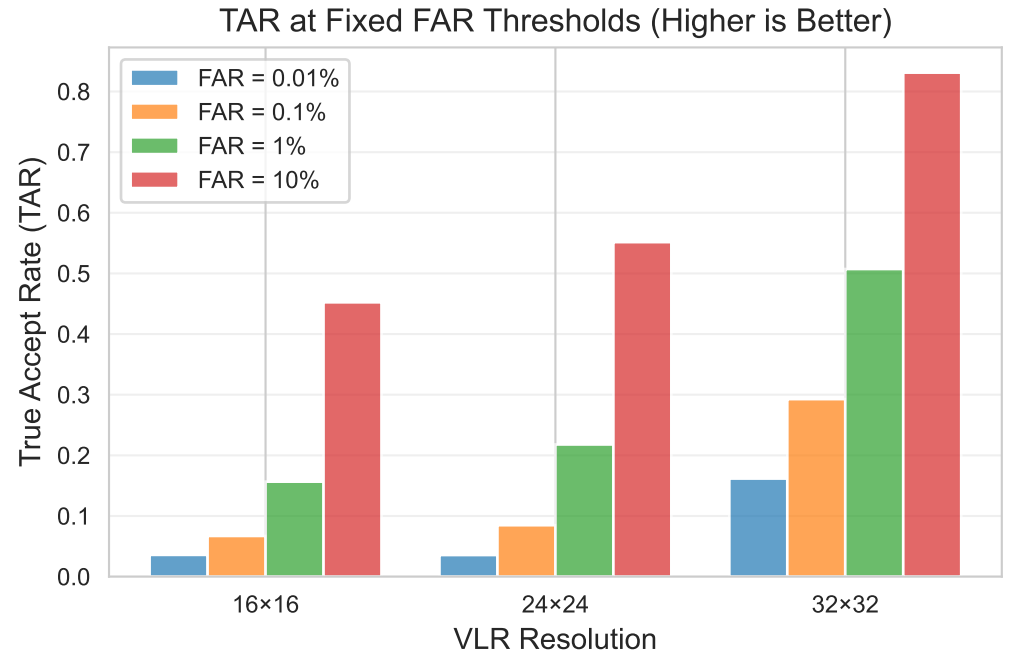
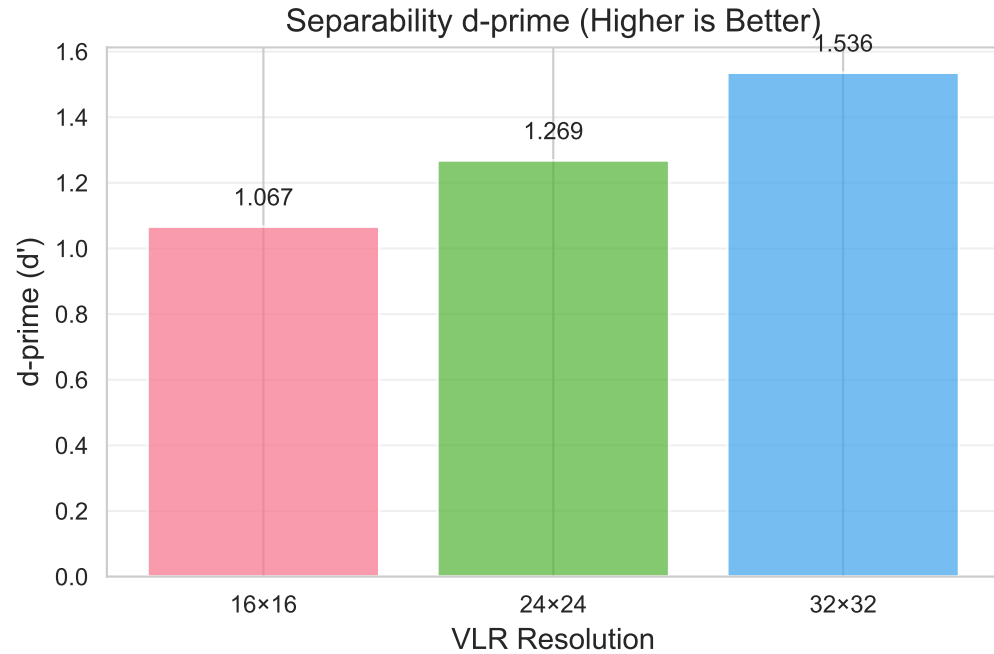
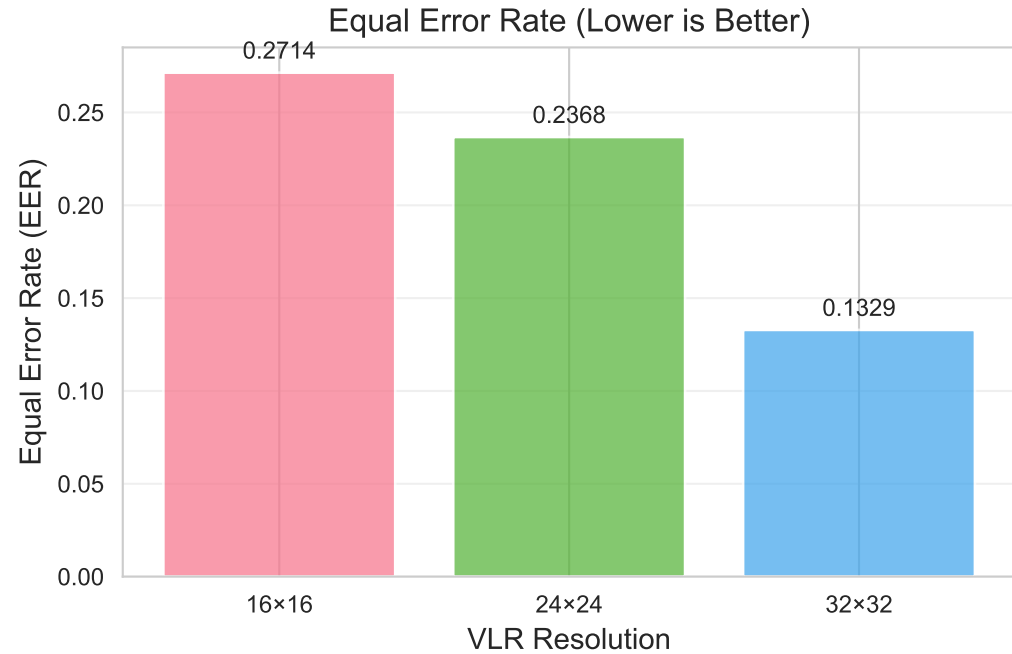
24×24 VLR



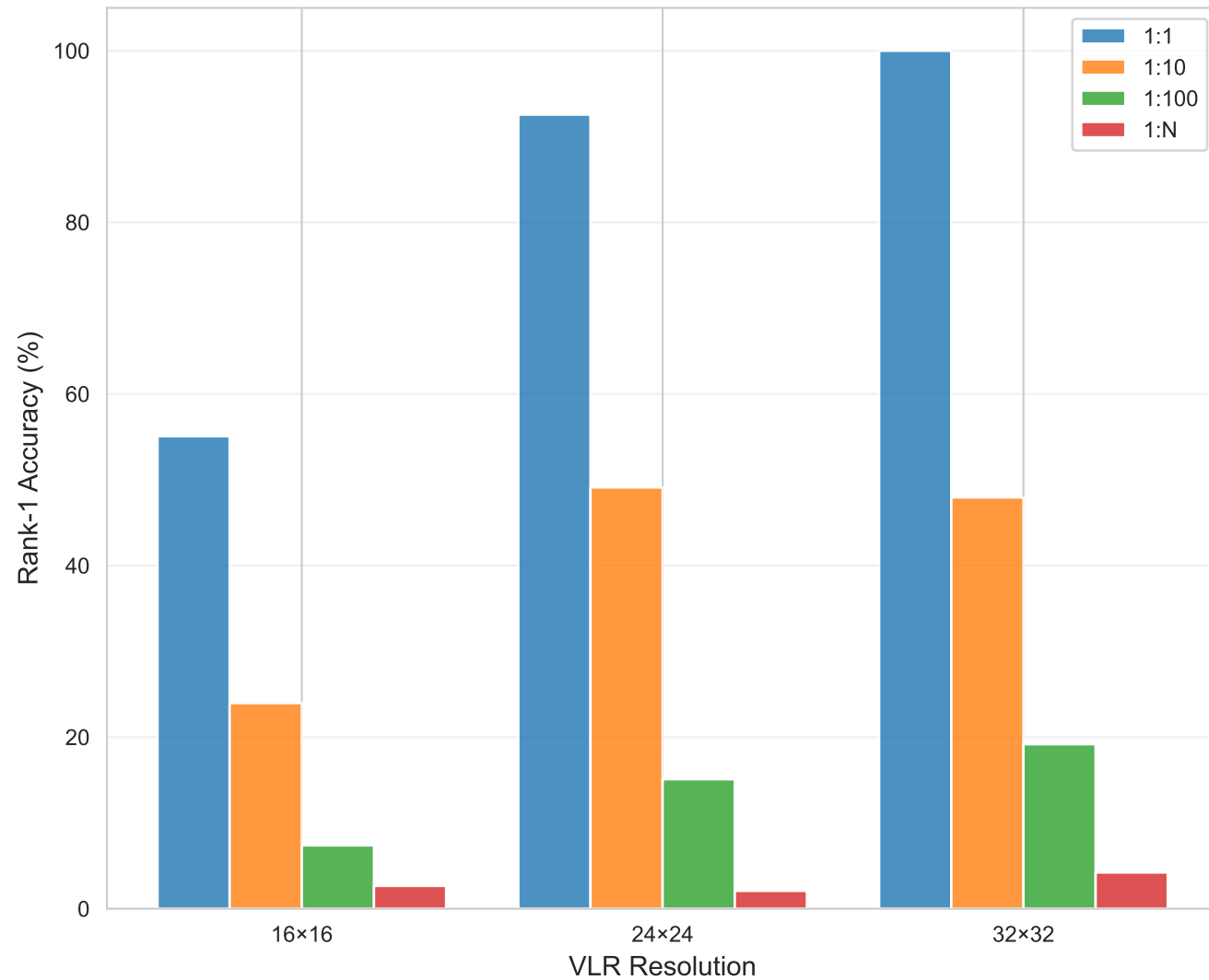
32×32 VLR



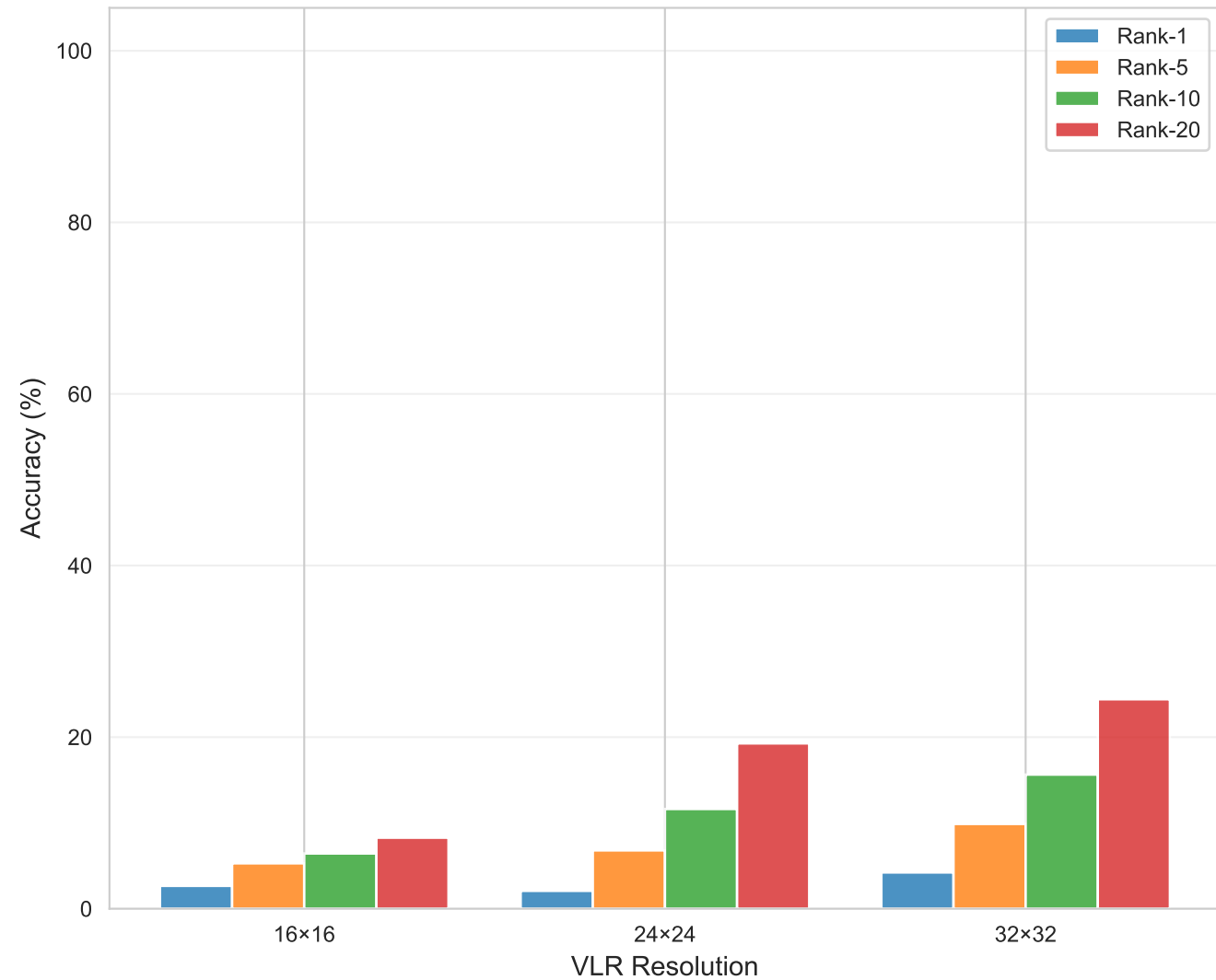
Verification Metrics Comparison



Multi-Scale Identification (Rank-1)



1:N Identification (Multi-Rank)



CMC Curve (1:N Identification)

