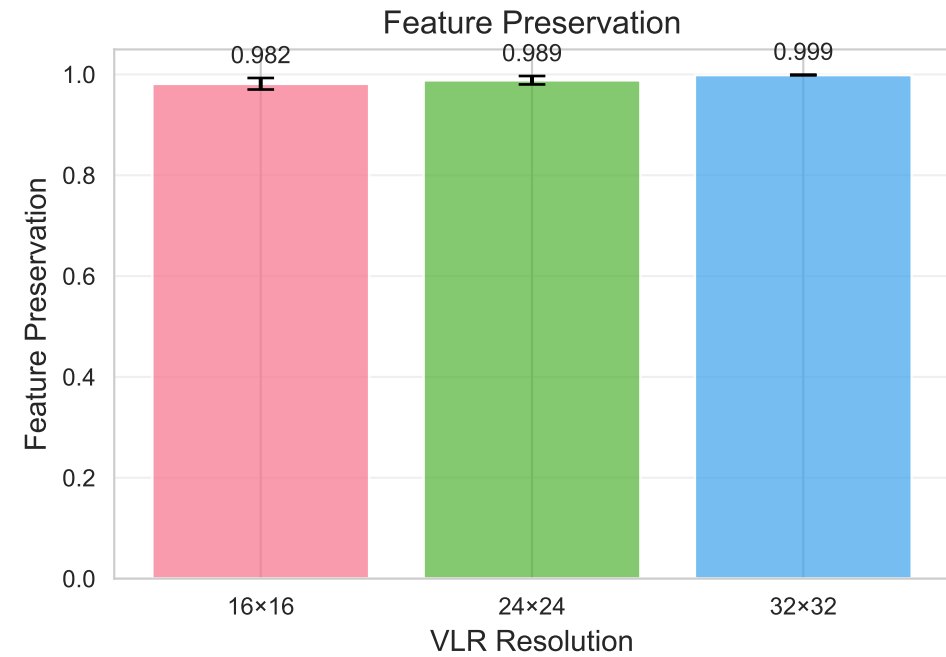
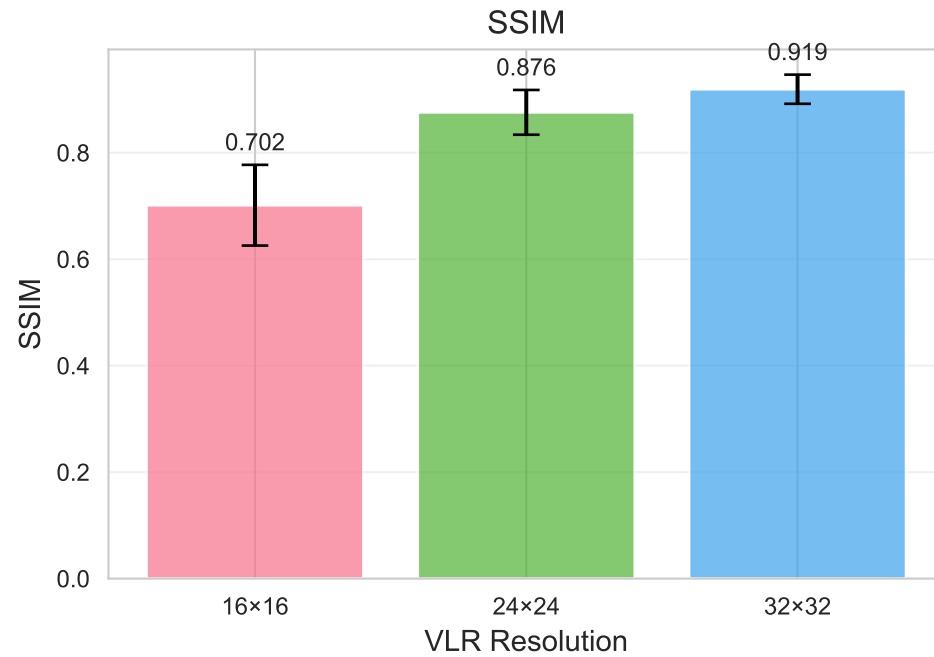
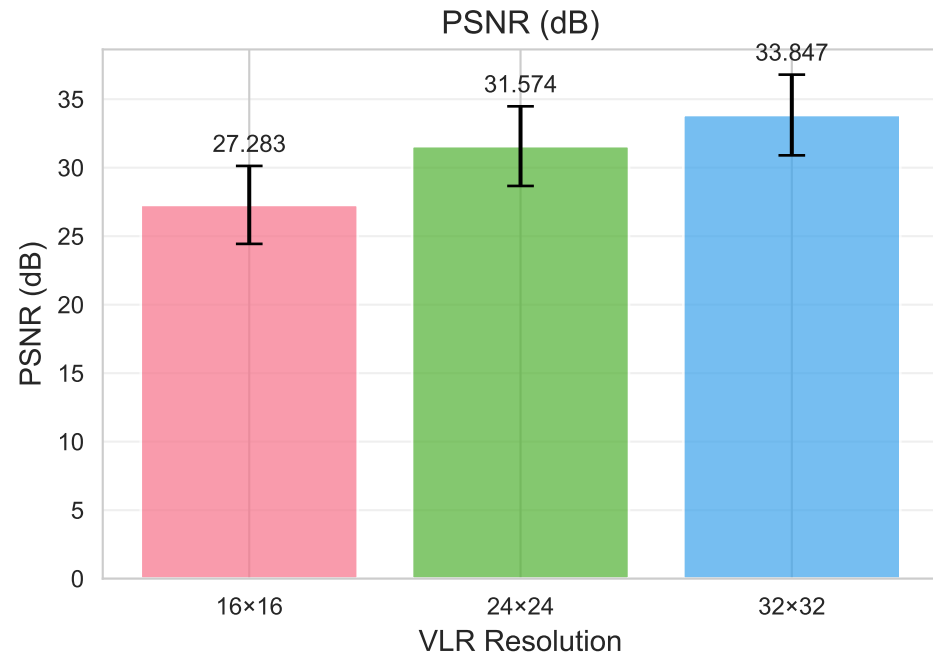


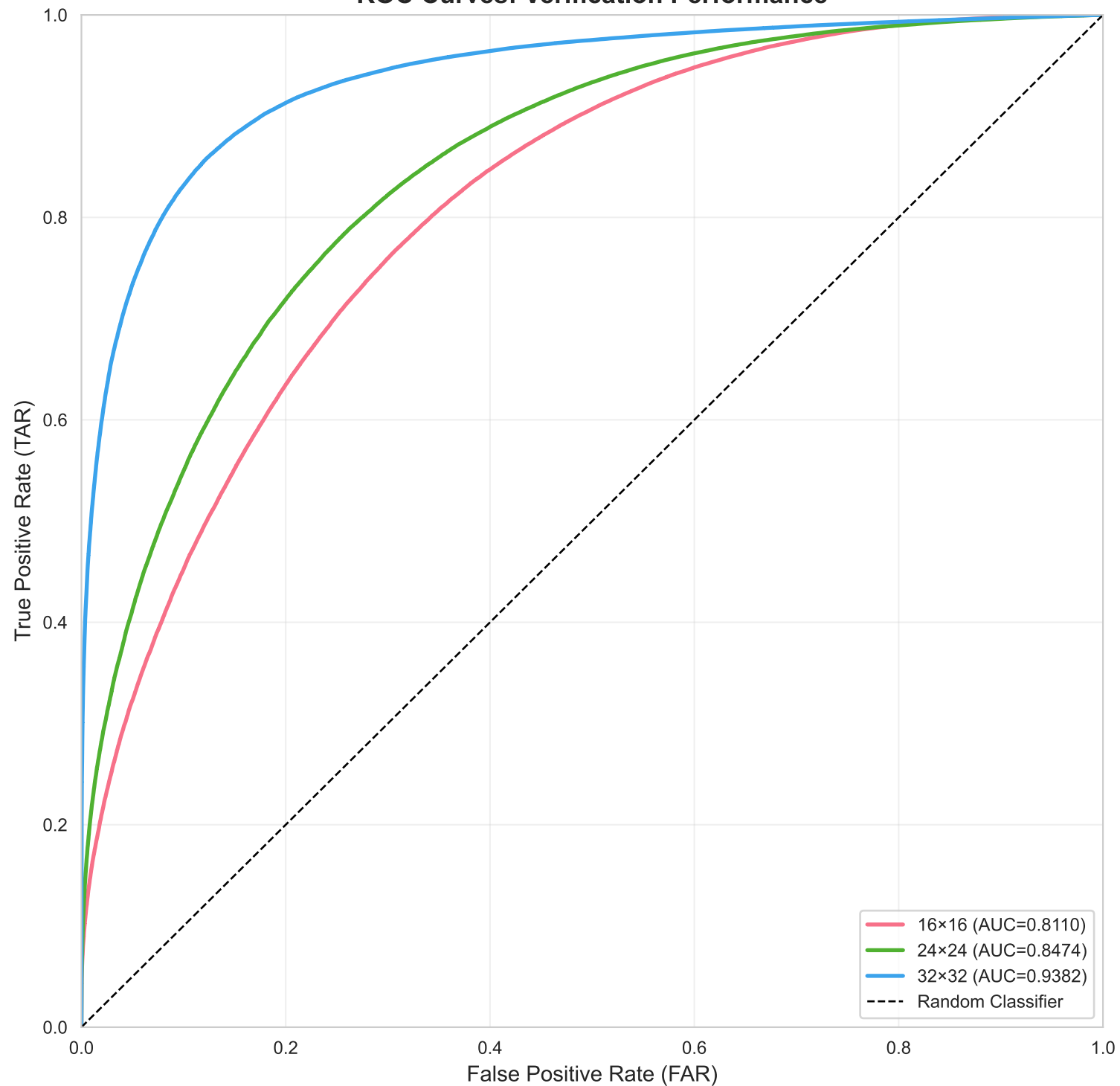
Comprehensive Evaluation Summary

Metric	16×16	24×24	32×32
PSNR (dB)	27.28 ± 2.85	31.57 ± 2.91	33.85 ± 2.95
SSIM	0.7015 ± 0.0758	0.8760 ± 0.0421	0.9194 ± 0.0274
Feature Preservation	0.9815 ± 0.0114	0.9885 ± 0.0084	0.9988 ± 0.0007
EER	0.2717	0.2373	0.1327
ROC AUC	0.8110	0.8474	0.9382
d' (separability)	1.061	1.268	1.538
TAR @ FAR=0.01%	0.0343	0.0369	0.1681
TAR @ FAR=0.1%	0.0685	0.0826	0.2932
TAR @ FAR=1%	0.1576	0.2169	0.5080
TAR @ FAR=10%	0.4523	0.5493	0.8315
1:1 Rank-1	0.5532	0.9260	1.0000
1:10 Rank-1	0.2392	0.4856	0.4795
1:100 Rank-1	0.0766	0.1522	0.1901
1:N Rank-1	0.0265	0.0210	0.0426
1:N Rank-5	0.0532	0.0677	0.0991
1:N Rank-10	0.0642	0.1164	0.1565
1:N Rank-20	0.0831	0.1938	0.2439

Image Quality Metrics Comparison

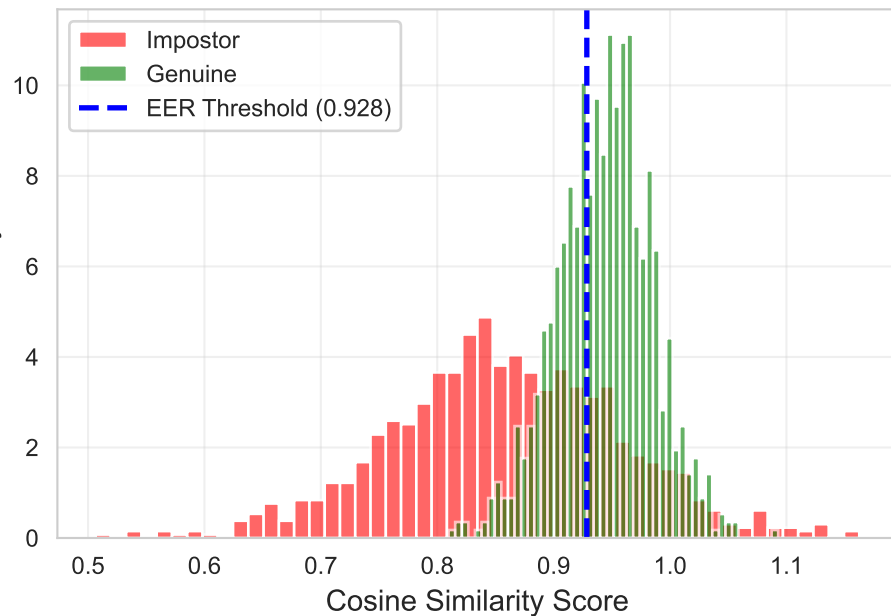


ROC Curves: Verification Performance

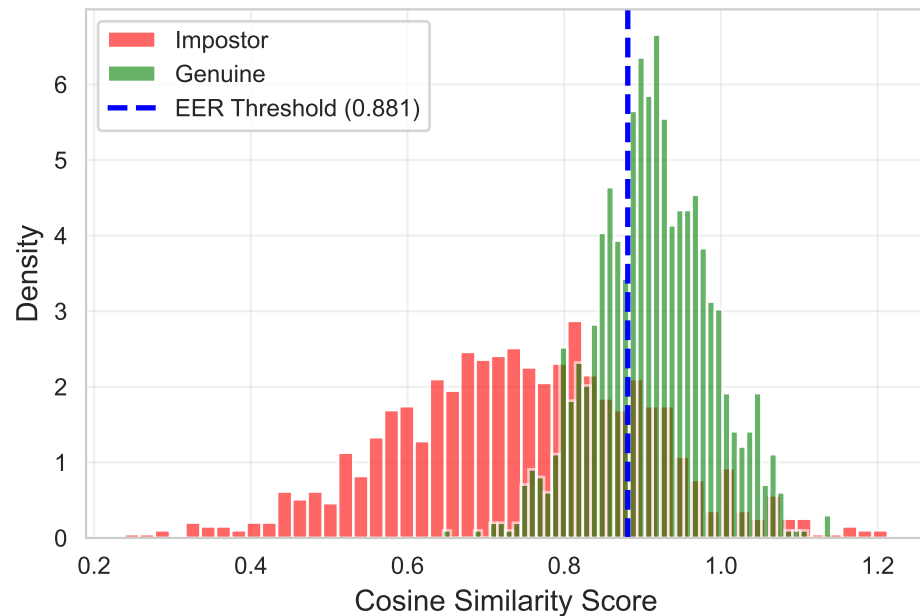


Genuine vs Impostor Score Distributions

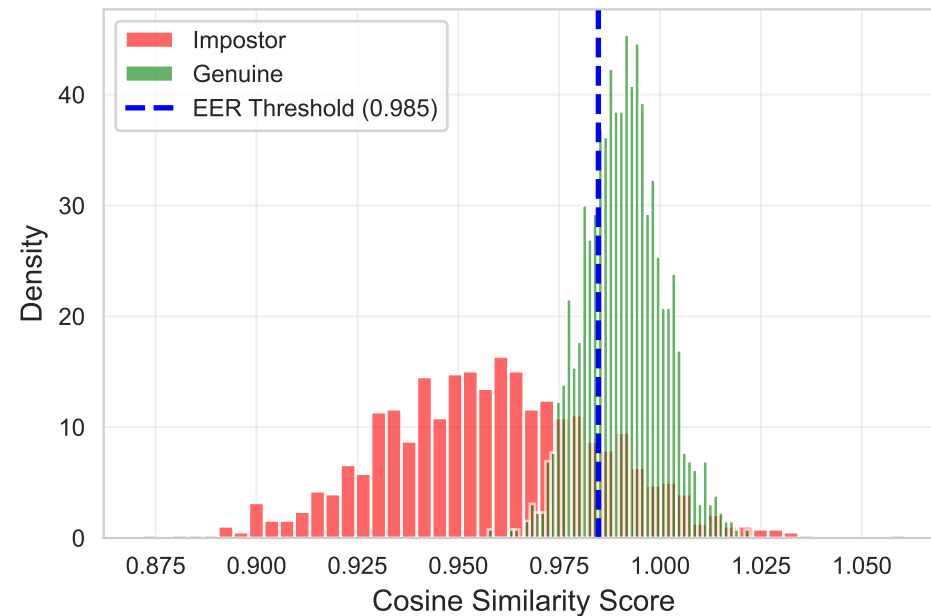
16×16 VLR



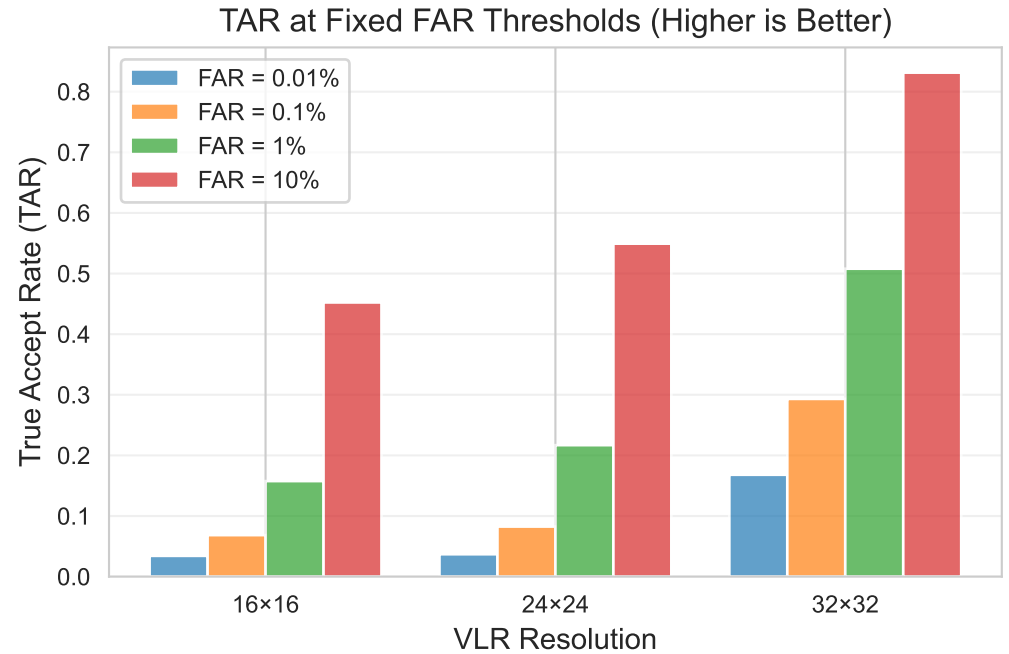
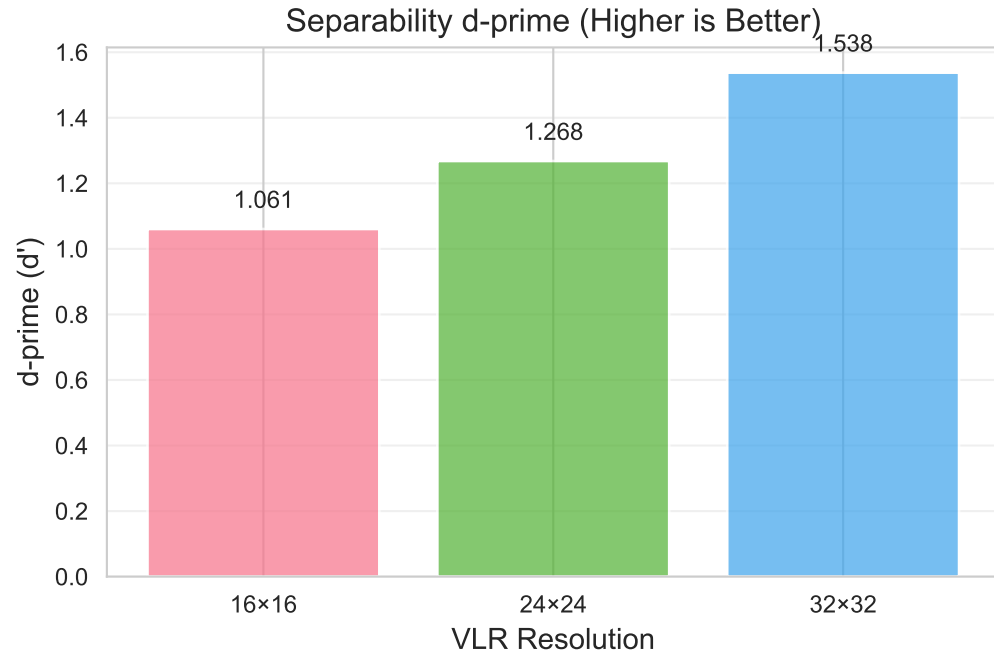
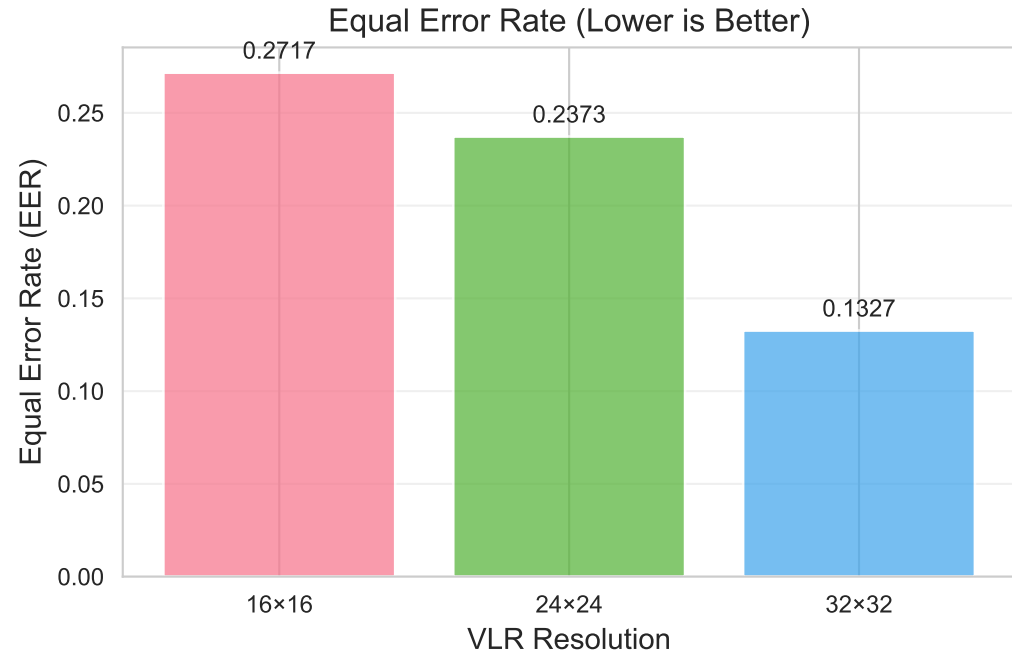
24×24 VLR

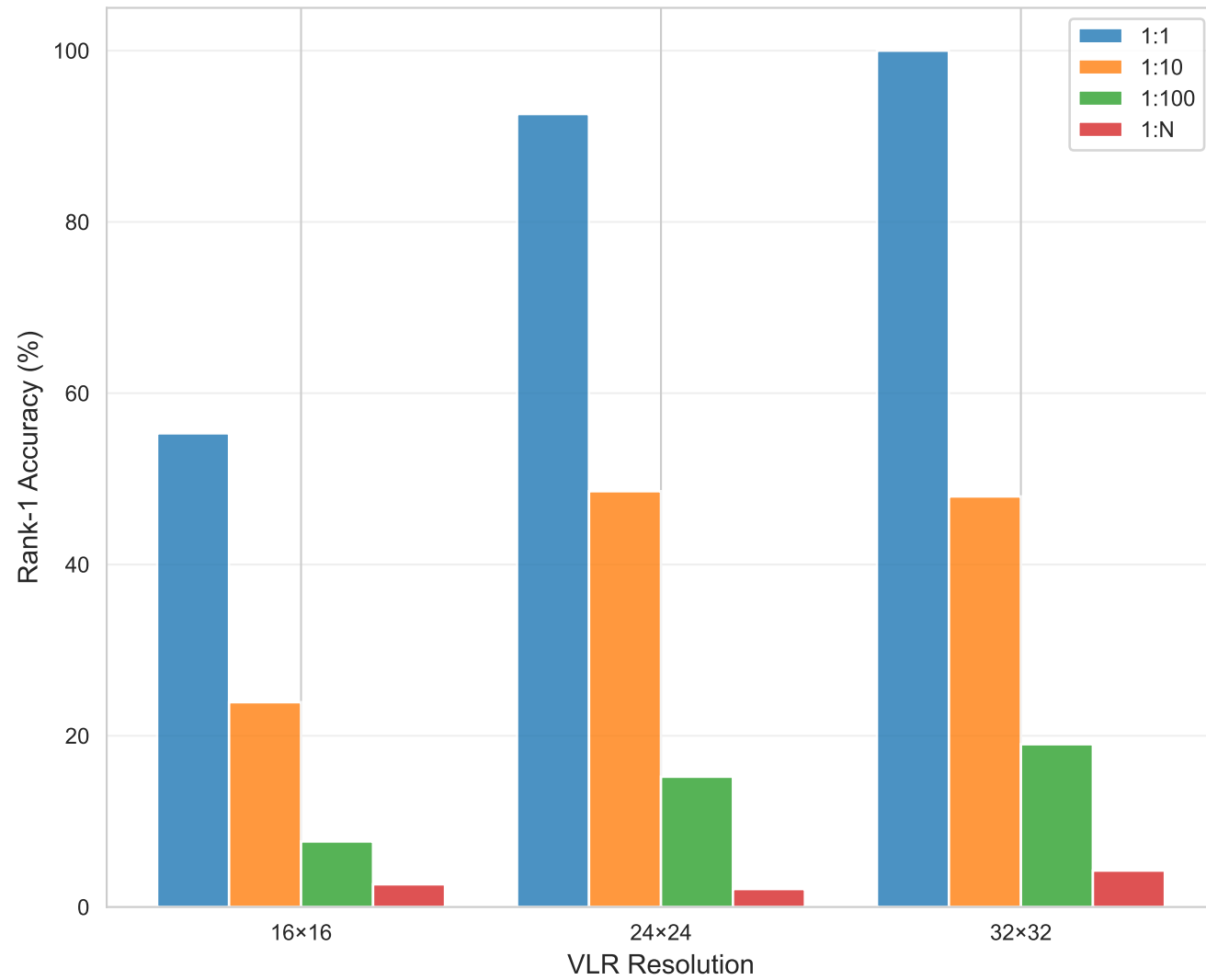
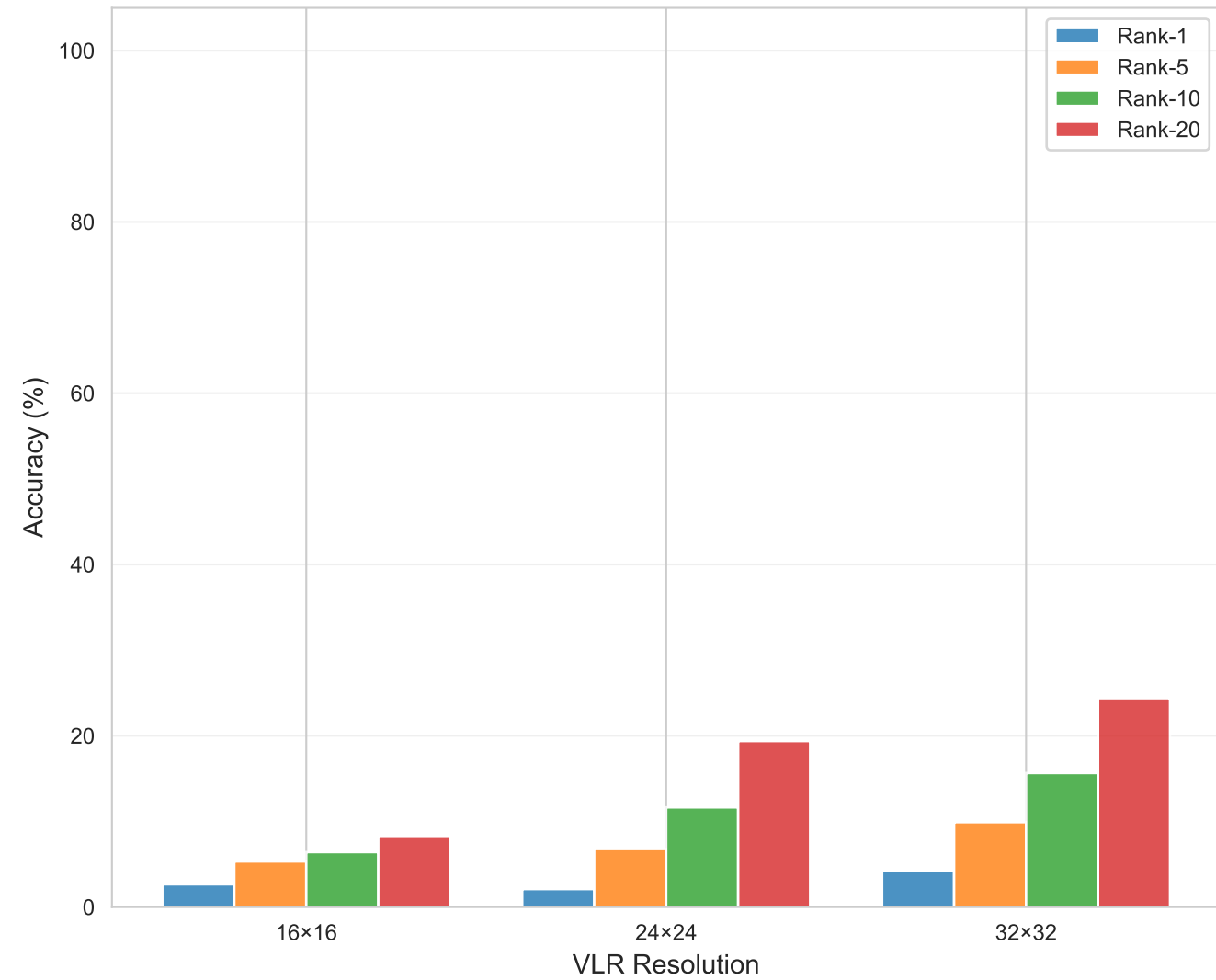


32×32 VLR



Verification Metrics Comparison



Multi-Scale Identification (Rank-1)**1:N Identification (Multi-Rank)**

CMC Curve (1:N Identification)

