(a) System Overview (b) PASE-Net Architecture CSI Input [B, 128, 52] Conv2D Block1 WiFi CSI 32 filters, 3×3 BN + ReLU + Pool Signals SRV 668 trials Conv2D Block2 64 filters, 3×3 BN + ReLU + Pool **Physics** Modeling Conv2D Block3 CDAE 128 filters, 3×3 LOSO/LORO BN + ReLU + Pool Synthetic Data Gen **SE Attention Temporal Attention** Reduc=16, FC Layers Sigmoid Gating Multi-Head=8 Self-Attention STEA Sim2Real **Feature Fusion PASE-Net** Concatenation + Model **Linear Projection** Parameters: 2.3M FLOPs: 3.2G Capacity-matched Calibrated Output Temperature Scaling 8 Activity Classes Calibrated Output