

SYNC: Bio-Inspired Decentralized Synchronization



Cocktail Party Problem & Centralized Limits



Target signal isolation in noise

Brittleness of centralized timing

Stochastic degradation factors

Separation of temporal and spatial cues

Bio-Inspired Coordination Principles



Kuramoto-Based Adaptive Framework



Spatial Priors for Target Coherence



Selective Attention as Emergent Phase-Locking



Order parameter alignment

Background monitoring vs foreground focus

Adaptive coherence formation

Salience through synchronization

Evaluation and Validation Metrics



Limitations and Future Directions

