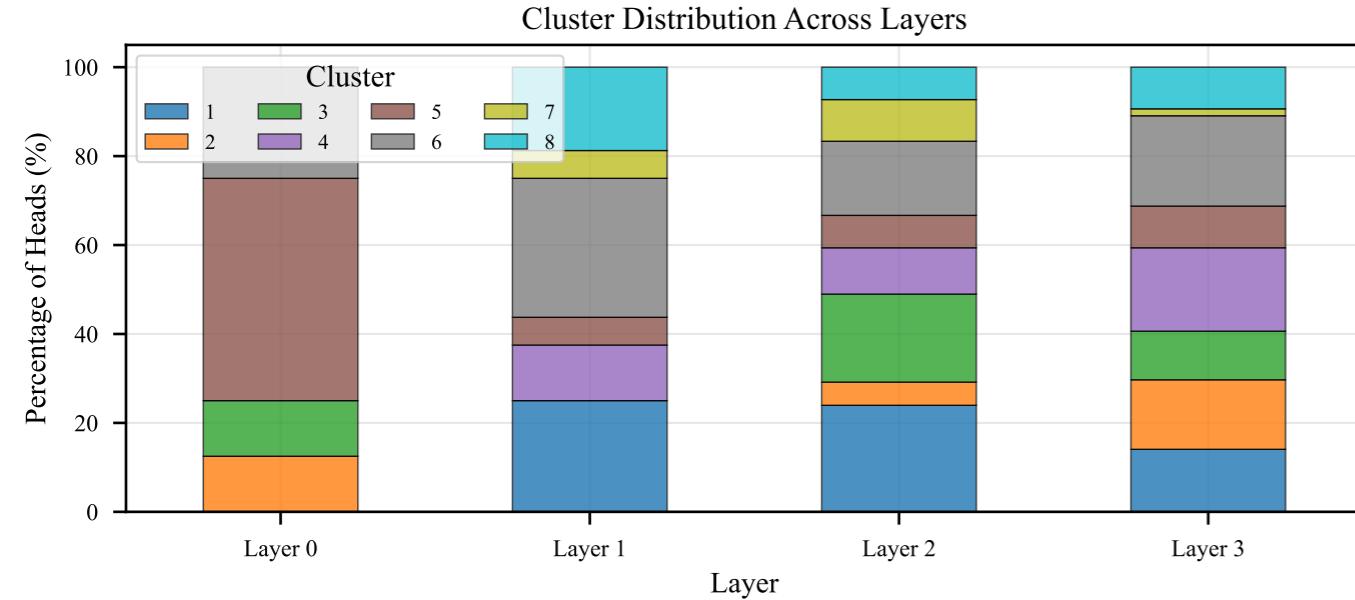
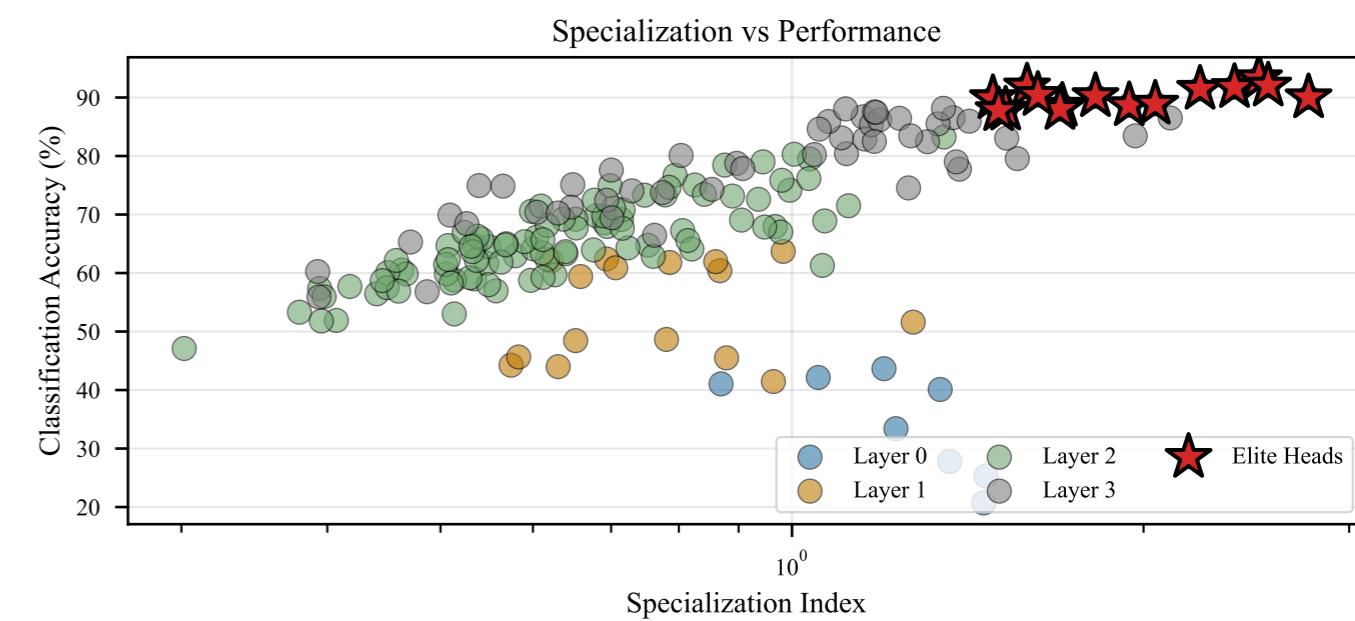
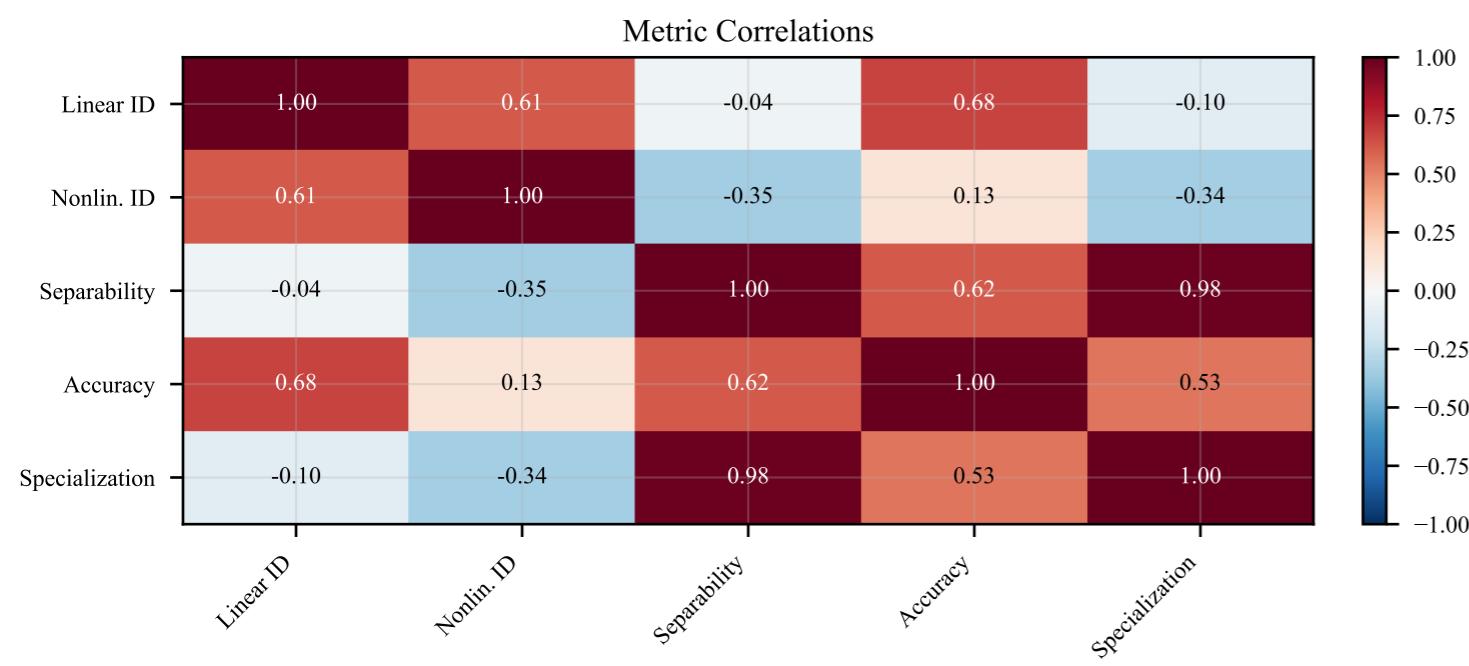
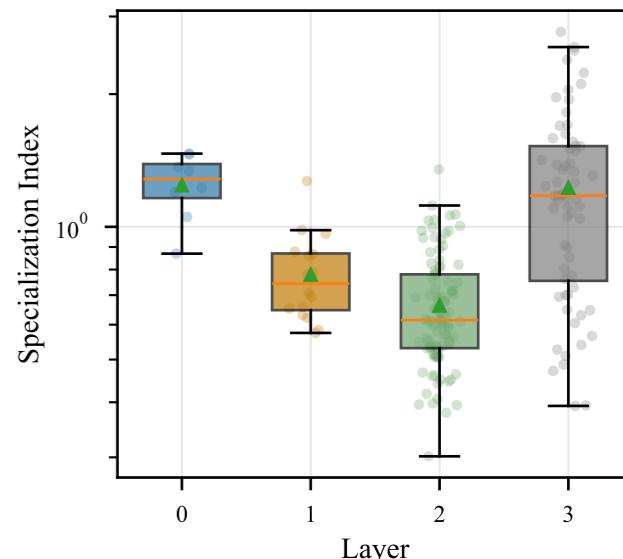
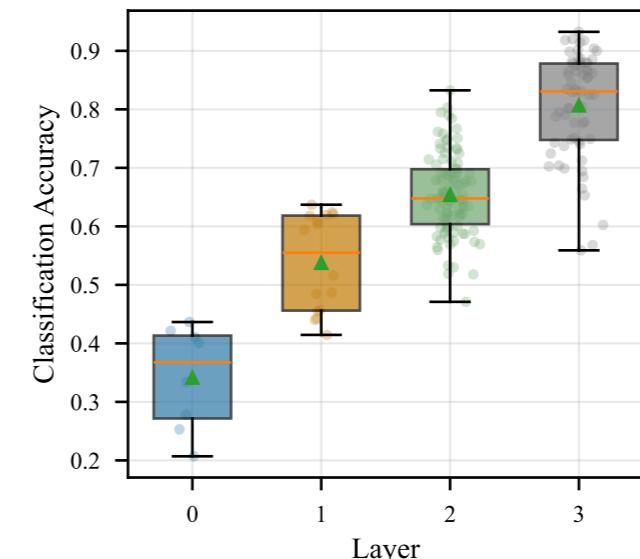
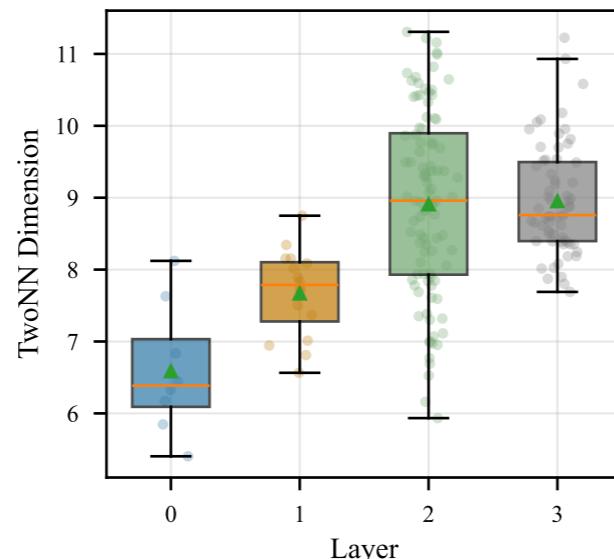
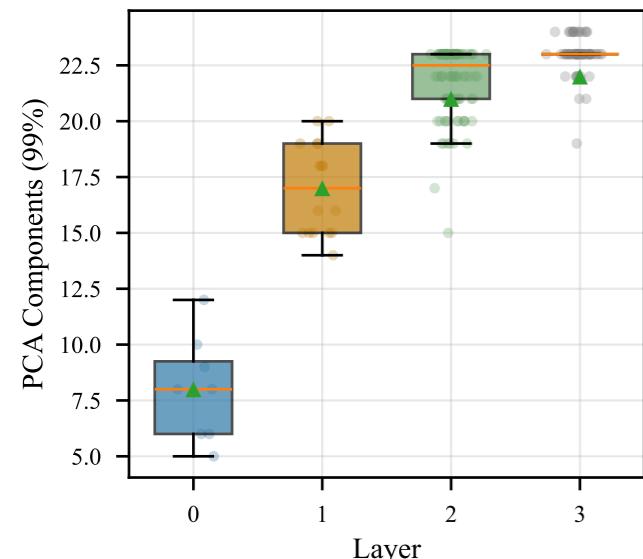


Comprehensive Analysis of HTSAT Attention Heads



KEY FINDINGS

Dimensionality:

- Linear ID (PCA-99): 21.2 ± 3.5 components
- Nonlinear ID (TwoNN): 8.7 ± 1.2 dimensions
- Layer progression: L0=8.0 → L3=23.0

Performance:

- Best head accuracy: 93.2% (Layer 3)
- Mean accuracy: $68.5 \pm 13.7\%$
- Chance level: 2.0%

Specialization:

- Highly specialized heads: 19/184 (10.3%)
- Correlation (spec. vs acc.): $r=0.532$

Organization:

- Identified 8 functional clusters
- Mean silhouette score: 0.051
- Layer-specific patterns detected