

Comprehensive Model Comparison

Method	Execution Time (s)	Peak Memory (GB)	Reconstruction Quality	Information Criterion	Factor Stability
SPARSEGFA	303.38	2.35	N/A*	N/A	N/A**
PCA	0.06	2.34	0.6586	N/A	N/A
ICA	0.19	2.35	0.4765	N/A	N/A
FA	1.49	2.74	0.6488	N/A	N/A
NMF	0.68	2.36	0.7565	N/A	N/A
KMEANS	0.92	2.37	0.5639	N/A	N/A**
CCA	0.64	2.46	0.5996	N/A	N/A**

* *sparseGFA*: CV reconstruction failed (computationally expensive due to MCMC)
** *sparseGFA*, *CCA*, *K-means*: Factor stability not computed (bootstrap too expensive or not applicable)