

Comprehensive Model Comparison

Method	Execution Time (s)	Peak Memory (GB)	Reconstruction Quality	Information Criterion	Factor Stability
SPARSEGFA	430.41	2.50	N/A*	N/A	N/A**
PCA	0.24	2.51	0.6042	N/A	N/A
ICA	0.12	2.54	0.4894	N/A	N/A
FA	73.62	9.45	0.5994	N/A	N/A
NMF	1.31	2.52	0.7358	N/A	N/A
KMEANS	1.27	2.52	0.5405	N/A	N/A**
CCA	2.79	5.82	0.6896	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)