

Comprehensive Model Comparison

Method	Execution Time (s)	Peak Memory (GB)	Reconstruction Quality	Information Criterion	Factor Stability
SPARSEGFA	309.76	2.34	N/A*	N/A	N/A**
PCA	0.02	2.33	0.6894	N/A	N/A
ICA	0.01	2.33	0.4779	N/A	N/A
FA	0.38	2.38	0.6793	N/A	N/A
NMF	0.27	2.38	0.7848	N/A	N/A
KMEANS	0.29	2.38	0.5896	N/A	N/A**
CCA	0.10	2.38	0.7111	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)