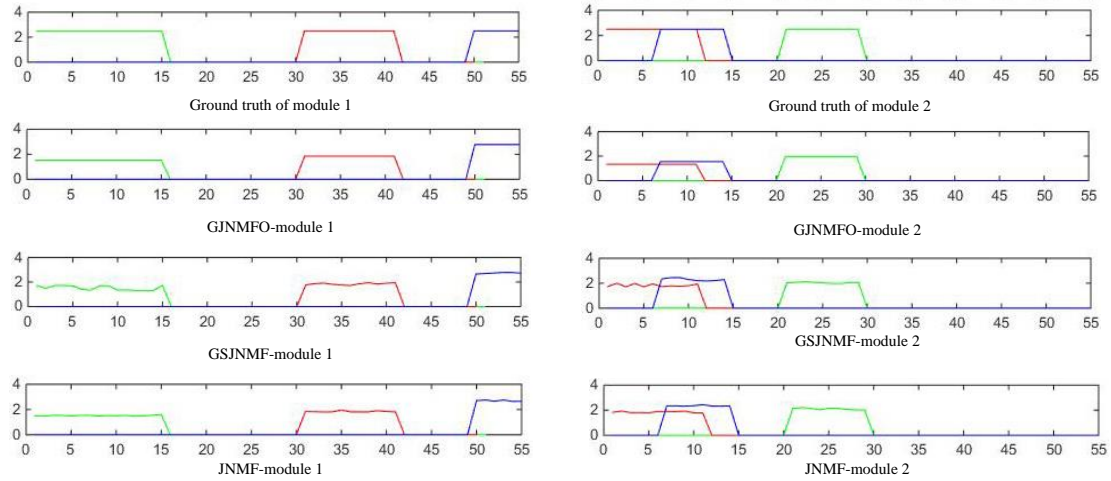
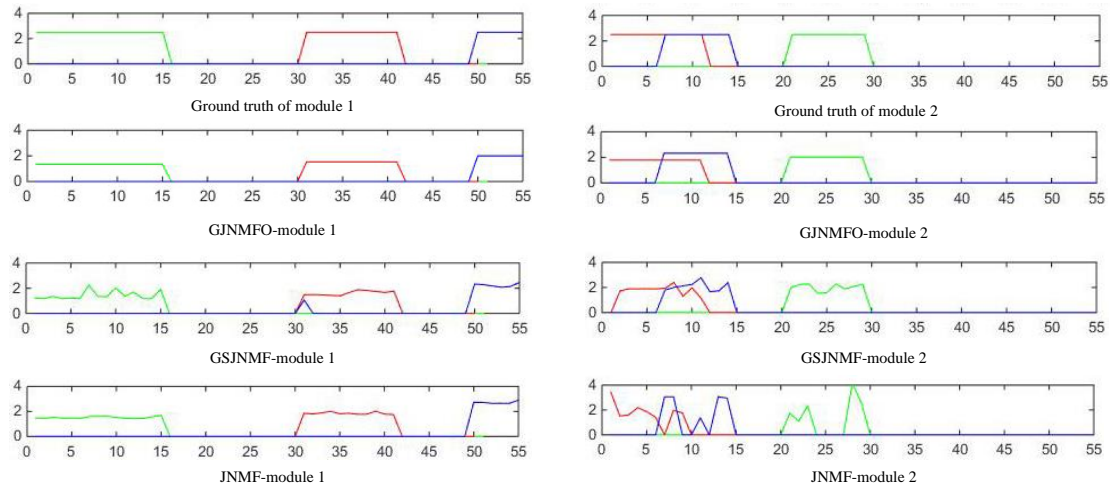


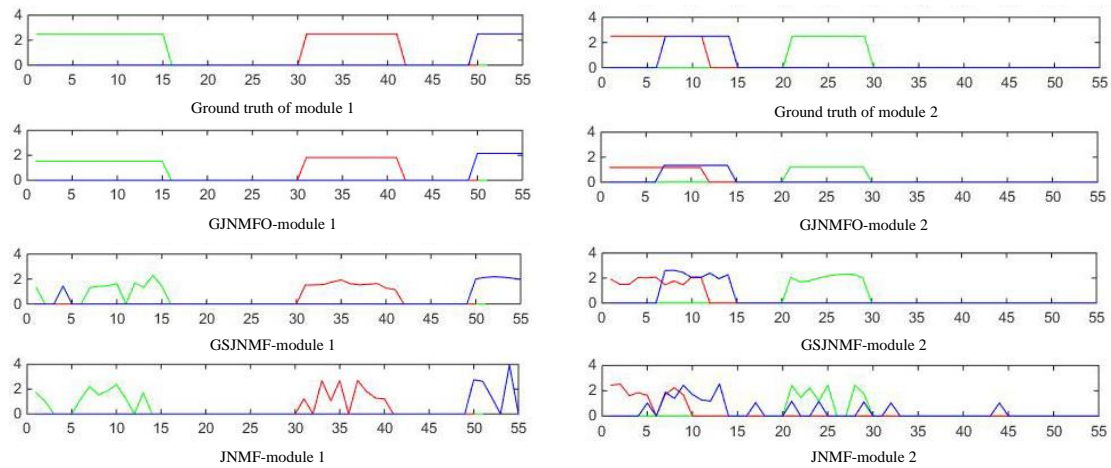
Appendix A



(a) the noise level $\ell=0.5$

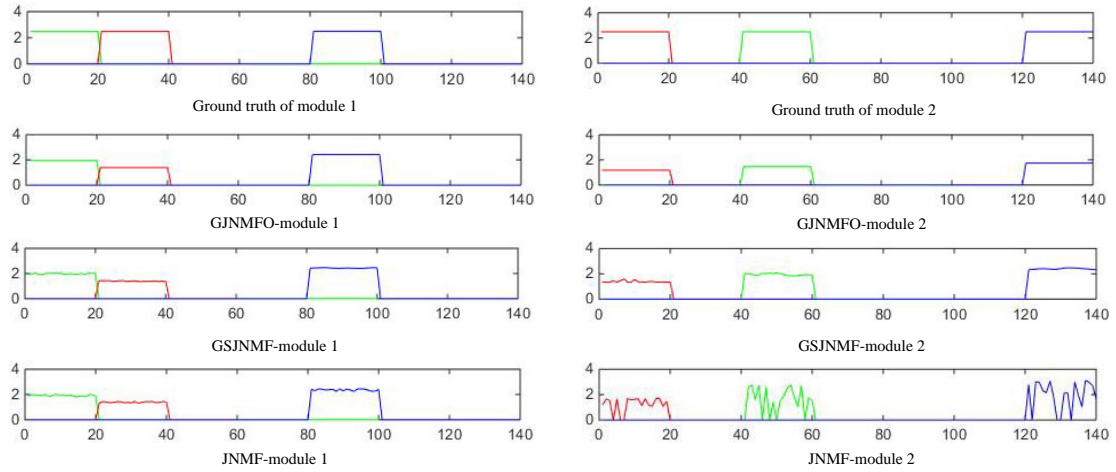


(b) the noise level $\ell=1$

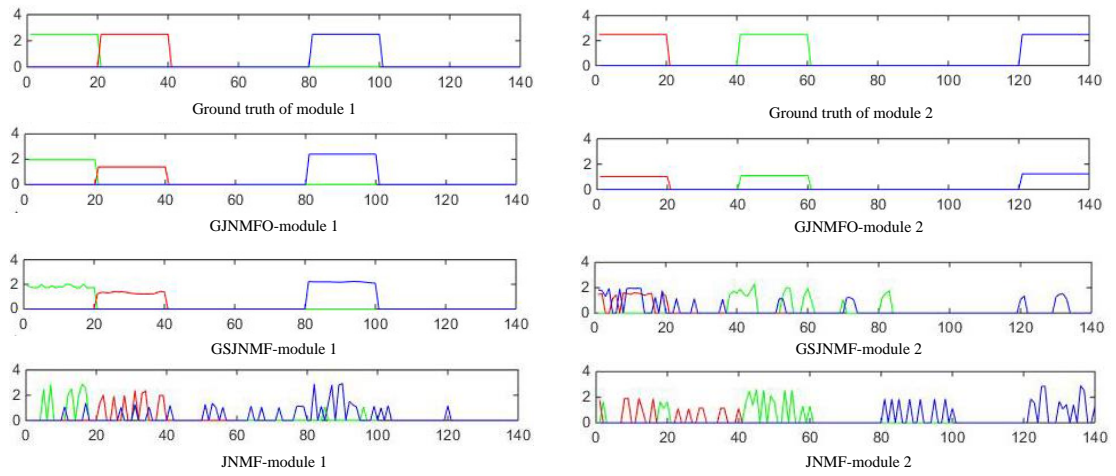


(c) the noise level $\ell=1.5$

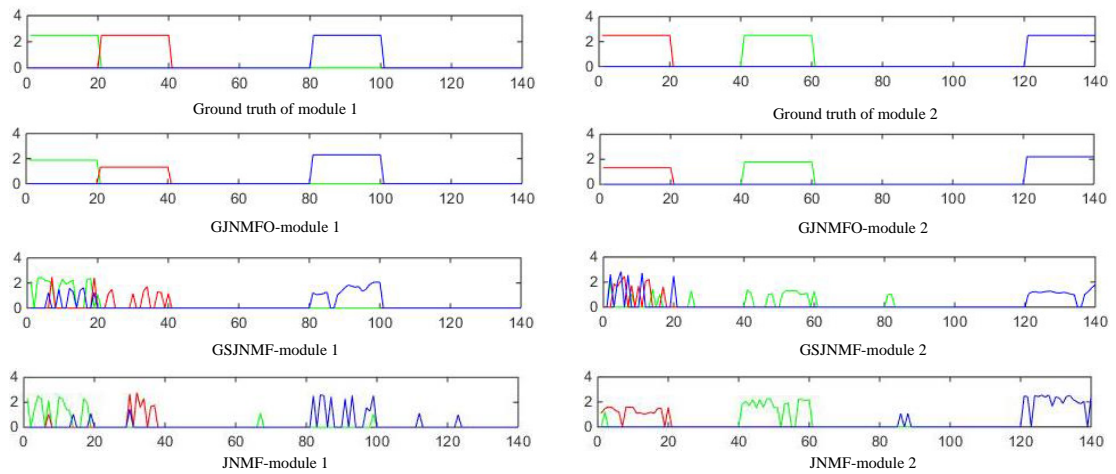
Fig. 1 Z-score of features obtained by GJNMF, GSJNMF and JNMF three algorithms in case2. (a), (b), and (c) are z-score of features obtained by three algorithms at a noise level of 0.5, 1, and 1.5, respectively. Ground truth represents the real z-score of the features.



(a) the noise level $\ell=0.5$

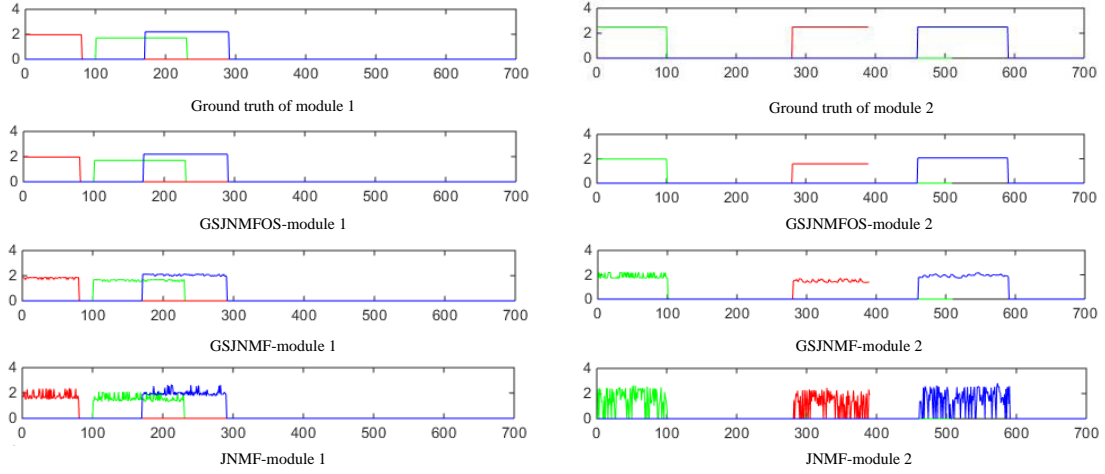


(b) the noise level $\ell=1$

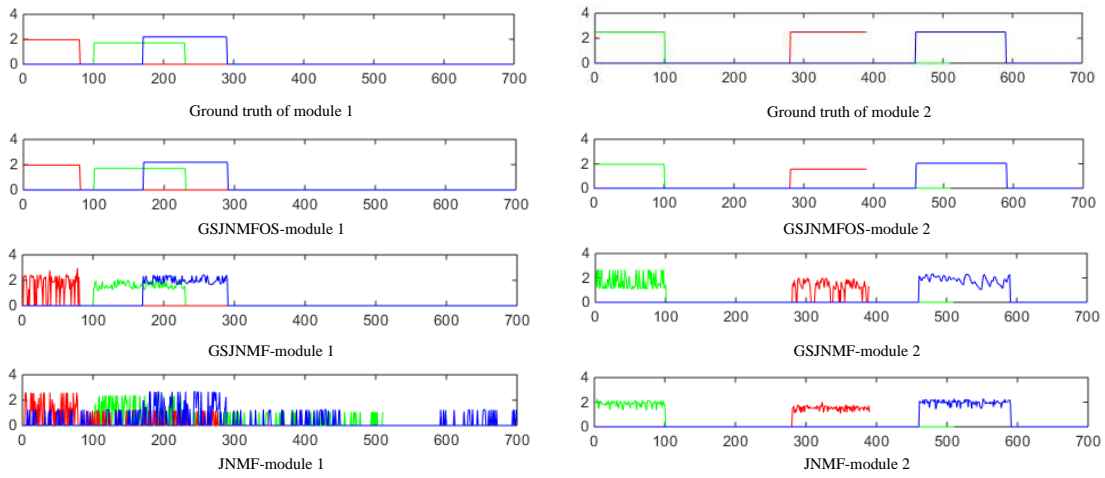


(c) the noise level $\ell=1.5$

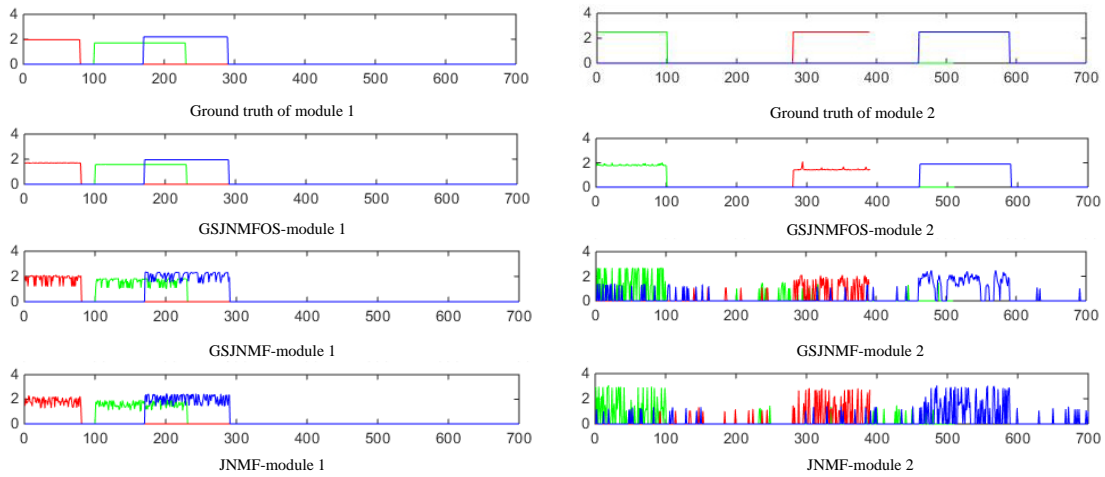
Fig. 2 Z-score of features obtained by GJNMF, GSJNMF and JNMF three algorithms in case3. (a), (b), and (c) are z-score of features obtained by three algorithms at a noise level of 0.5, 1, and 1.5, respectively. Ground truth represents the real z-score of the features.



(a) the noise level $\ell=0.5$



(b) the noise level $\ell=1$



(c) the noise level $\ell=1.5$

Fig. 3 Z-score of features obtained by GJNMF, GSJNMF and JNMF three algorithms in case4. (a), (b), and (c) are z-score of features obtained by three algorithms at a noise level of 0.5, 1, and 1.5, respectively. Ground truth represents the real z-score of the features.

Appendix B

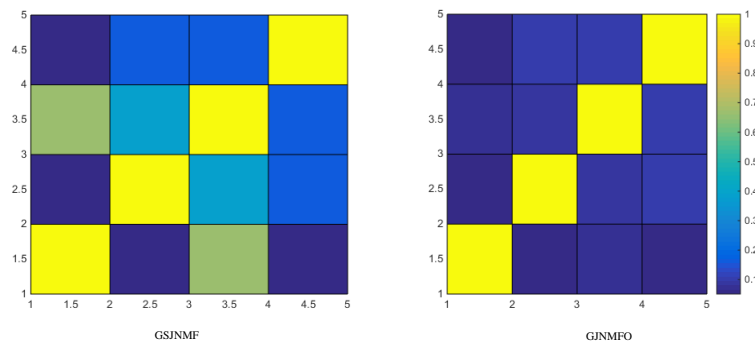


Fig. 1 The correlations between any two columns in the basis matrix of GJNMFO and GSJNMF.

Appendix C

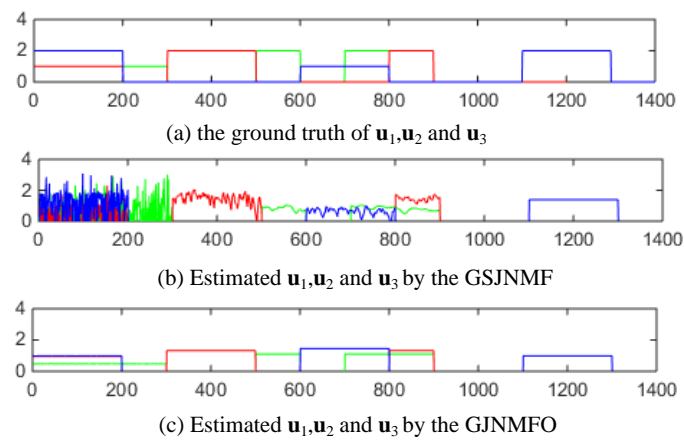


Fig. 1 (a) represents the ground truth of \mathbf{u}_1 , \mathbf{u}_2 and \mathbf{u}_3 , where green represents \mathbf{u}_1 , red represents \mathbf{u}_2 , and blue represents \mathbf{u}_3 . (b) Estimated \mathbf{u}_1 , \mathbf{u}_2 and \mathbf{u}_3 by the GSJNMF. (c) Estimated \mathbf{u}_1 , \mathbf{u}_2 and \mathbf{u}_3 by the GJNMFO.