



Joint clustering by CCNMF

$$\min \frac{1}{2} \|O - W_1 H_1\|_F^2 + \frac{\lambda_1}{2} \|E - W_2 H_2\|_F^2 - \lambda_2 \text{tr}(W_2^T A W_1) + \mu (\|W_1\|_F^2 + \|W_2\|_F^2)$$

- $W_1 \geq 0$ and $W_2 \geq 0$ are the centers matrix for clusters
- H_1 and H_2 are the weights matrix
- A is a coupling matrix