$$J(\bar{\mathbf{D}}, \bar{\mathbf{X}}) = \frac{1}{2} f_1(\mathbf{Y}, \bar{\mathbf{D}}, \bar{\mathbf{X}}) + \lambda \|\bar{\mathbf{X}}\|_1 + \eta \sum_{c=1}^{C} \sum_{i=1, i \neq c} \|\mathbf{D}_i^T \mathbf{D}_c\|_F^2$$