$$\text{Data} \atop \{\mathbf{x}^{(i)}\}_{i=1}^{n} \rightarrow$$

k-means (L_2)

Objective
$$\mathcal{L}(F(\mathbf{x}), \mathbf{x}) = \|F(\mathbf{x}) - \mathbf{x}\|_2^2$$

Hypothesis space
$$F = g \circ f : \{\mathbf{x}\}_{i=1}^{N} \rightarrow \{1, \ldots, k\} \rightarrow \mathbb{R}^M$$

Optimizer

Block coordinate descent

$$\rightarrow f$$