

Popular RSLs (e. g. XCS, XCSF, UCS, BioHEL, ...) build **discriminative function models** of the form

$$\hat{f}_{\mathcal{M}}(\theta, x) = \sum_{k=1}^K \underbrace{m_k(x)}_{\text{responsibility}} \underbrace{\gamma_k}_{\text{mixing weight}} \underbrace{\hat{f}_k(\theta_k, x)}_{\text{submodel}} \quad (1)$$

model structure

where $\theta = \left\{ \{\theta_k\}_{k=1}^K, \{\gamma_k\}_{k=1}^K \right\}$ and $\mathcal{M} = \left\{ K, \{m_k\}_{k=1}^K \right\}$.