

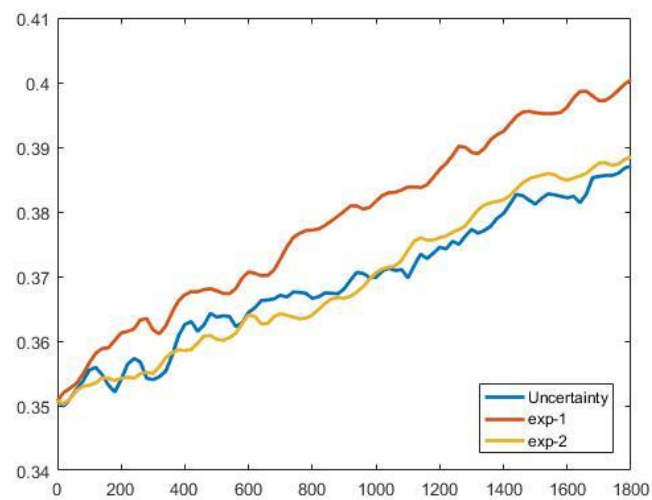
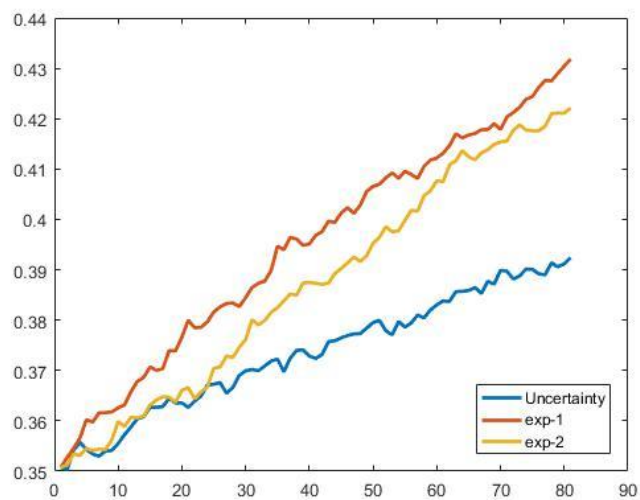
Cost-Effective Active Learning for Hierarchical Multi-Label Classification

$$\min_{H,\alpha} \quad -\sum_{i=1}^n U_i \Big(H \oslash (Z_1 Y_i + Z_2 \bar{Y}_i) + I \Big) \oslash P_{1i} \alpha_i + \lambda_1 c \big(P_2 \oslash \alpha \big) \mathbf{1} + \lambda_1 \left\| H_0 - H \right\|^2$$

$$s.t. \quad 0 \leq \alpha_{ij} \leq 1, \quad \sum \alpha_{ij} = k$$

$$Y_i = \begin{bmatrix} y_{i1} & & \\ & \dots & \\ & & y_{il} \end{bmatrix} \qquad \bar{Y}_i = I - Y_i$$

$$Z_1 = \begin{bmatrix} 1 & 1 & 1 \\ & \dots & 1 \\ & & 1 \end{bmatrix} \qquad Z_2 = \begin{bmatrix} 1 & & \\ 1 & \dots & \\ 1 & 1 & 1 \end{bmatrix}$$



Yeast-go

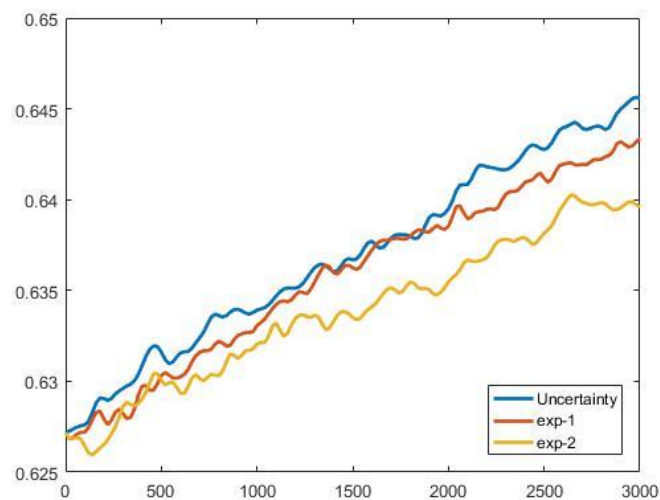
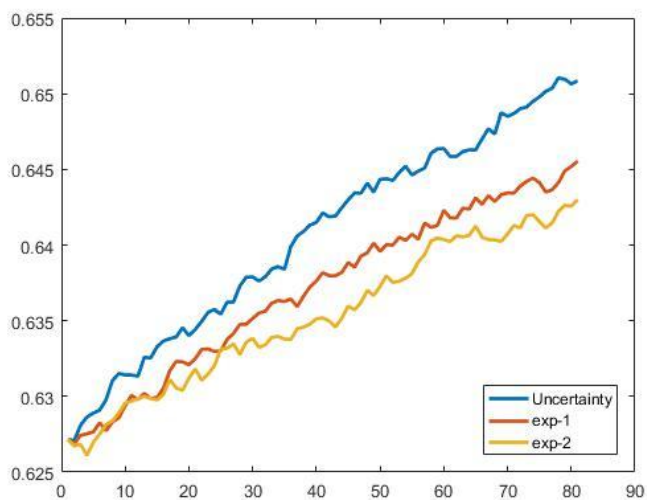


Image07D