



$x$   $\equiv$  Sample image  
 $y_{com}$   $\equiv$  Component type id  $\{1, 2, \dots, T\}$   
 $z$   $\equiv$  Embedding shared by both models.  
 $P(z|y_{com})$   $\equiv$  Embedding likelihood  $\{GMM_1(z), GMM_2(z), \dots, GMM_T(z)\}$ .  
 $GMM_i$   $\equiv$  Gaussian Mixture Model of component type  $i$ .  
 $\tau_0, \tau_1, \tau_2$   $\equiv$  Thresholds optimized by Bayesian optimization.

$\hat{y}_{def}^1$   $\in \{\text{'good'}, \text{'bad'}\}$   
 $\hat{y}_{def}^2$   $\in \{\text{'good'}, \text{'bad'}, \text{'unknown'}\}$   
 $\hat{y}_{def}$   $\in \{\text{'good'}, \text{'bad'}, \text{'unknown'}\}$