

$$\begin{array}{c}
 (\mathbf{t}_i^T) \rightarrow \begin{bmatrix} x_{1,1} & \dots & x_{1,n} \\ \vdots & \ddots & \vdots \\ x_{m,1} & \dots & x_{m,n} \end{bmatrix} \quad \begin{array}{c} X \\ (\mathbf{d}_j) \\ \downarrow \end{array} \\
 = (\hat{\mathbf{t}}_i^T) \rightarrow \begin{bmatrix} \boxed{\mathbf{u}_1} \dots \mathbf{u}_l \end{bmatrix} \quad \begin{array}{c} U \\ \text{"Concept weight" per term} \\ \text{(Contribution to each term)} \end{array} \\
 \cdot \begin{bmatrix} \sigma_1 & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \sigma_l \end{bmatrix} \quad \begin{array}{c} \Sigma \\ \text{Reduced (by rank)} \\ \text{singular values} \end{array} \\
 \cdot \begin{bmatrix} \boxed{\mathbf{v}_1} \\ \vdots \\ \mathbf{v}_l \end{bmatrix} \quad \begin{array}{c} V^T \\ (\hat{\mathbf{d}}_j) \\ \downarrow \\ \text{"Concept weight" per doc} \\ \text{(Contribution to each doc)} \\ \text{Reduced doc vector} \end{array}
 \end{array}$$