

Influence Transformation  
Function  $f(\cdot)$

Collaborative Filtering  
via Factorization Machines

$$\begin{array}{c}
 p_1 \ p_2 \ p_3 \ p_4 \ p_5 \\
 \begin{matrix} c_1 \\ c_2 \\ c_3 \\ c_4 \end{matrix} \begin{bmatrix} 0 & 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 \end{bmatrix}
 \end{array}$$



$$\begin{array}{c}
 p_1 \ p_2 \ p_3 \ p_4 \ p_5 \\
 \begin{matrix} c_1 \\ c_2 \\ c_3 \\ c_4 \end{matrix} \begin{bmatrix} \beta_{11} & \alpha_{12} & \beta_{13} & \alpha_{14} & \alpha_{15} \\ \alpha_{21} & \alpha_{22} & 0 & \beta_{24} & \beta_{25} \\ 0 & 0 & \alpha_{33} & \beta_{34} & 0 \\ 0 & \beta_{42} & \alpha_{43} & \alpha_{44} & \beta_{45} \end{bmatrix}
 \end{array}$$

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$$\begin{array}{c}
 \omega \\
 \begin{matrix} p_1 \\ p_2 \\ p_3 \\ p_4 \\ p_5 \end{matrix} \begin{bmatrix} 0.5 \\ 0.8 \\ 0.7 \\ 0.2 \\ 0.6 \end{bmatrix}
 \end{array}$$



$$\begin{array}{c}
 S \\
 \begin{matrix} c_1 \\ c_2 \\ c_3 \\ c_4 \end{matrix} \begin{bmatrix} 3.4 \\ 4.2 \\ 1.8 \\ 2.5 \end{bmatrix}
 \end{array}$$

Contributor-Project Relation Matrix

Influence Matrix

Project Strength

Influence Score