

User-Item历史评分数据

	Item 1	Item 2	...	Item n
User1	$r_{1,1}$	$r_{1,2}$...	$r_{1,n}$
User2	$r_{2,1}$	$r_{2,2}$		$r_{2,n}$
...
User m	$r_{m,1}$	$r_{m,2}$		$r_{m,n}$

MF embadding

User-Item embadding

	V 1	...	V n
User1
User2
...

User embadding

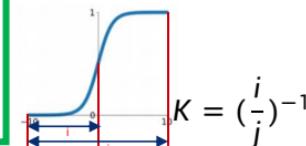


	V 1	...	V m
Item1
Item2
...

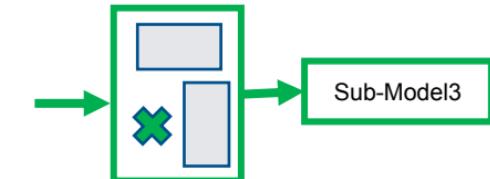
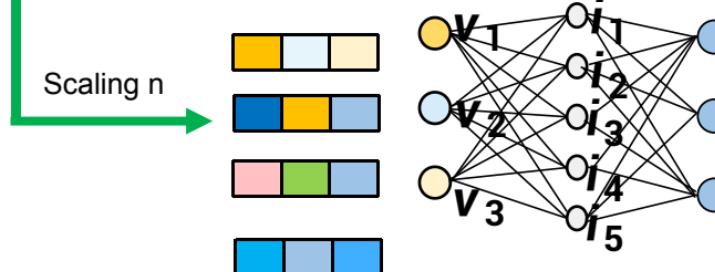
Item embadding

Scaling 1 → Sub-Model1

Scaling 2 → Sub-Model2



Scaling n



$$R_{mxn} = U_m \times I_n \in Q_{mxn}$$

其中 $r_{i,j}$ 表示用户 i 对 item j 的评分

$$r_{i,j} = \begin{cases} \text{null}, & \text{未有交互记录需要预测} \\ n \in \{0, 1, 2, 3, 4, 5\}, & \text{记录打分数据} \end{cases}$$