User's Satisfaction Modeling in Personalized Recommendations

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Idea

context-aware recommenders brings better results
context strengthen other context's types
context influences the rating prediction

Algorithm

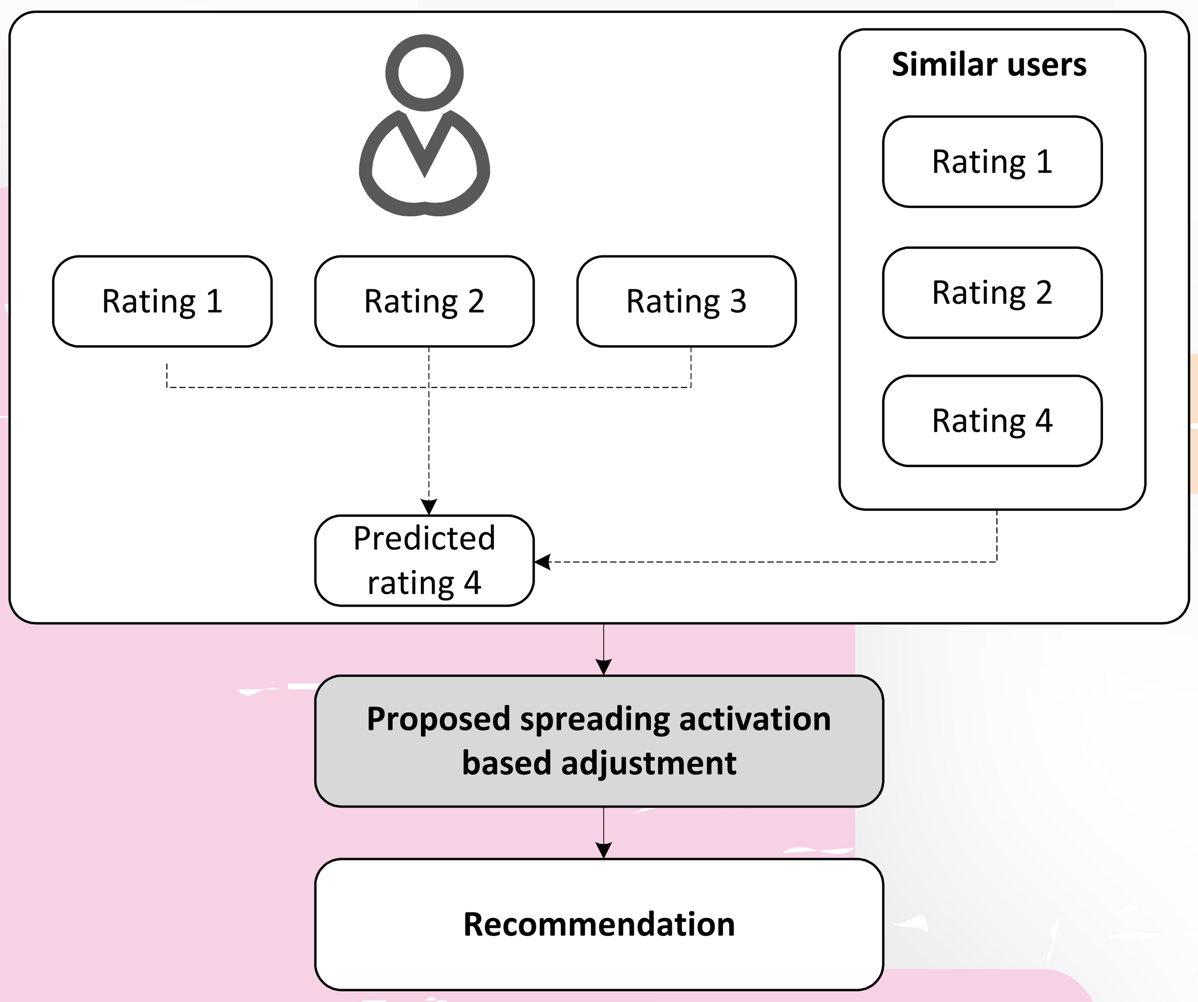
1.predict ratings for unrated items
2.spread activation through user's item specific influence graph
3.combine user's ratings history and result of influence graph

Results

rating prediction
average improvement MAE-0,28, RMSE-0,30
recommendation
average P@1 improvement 0,02

Evaluation

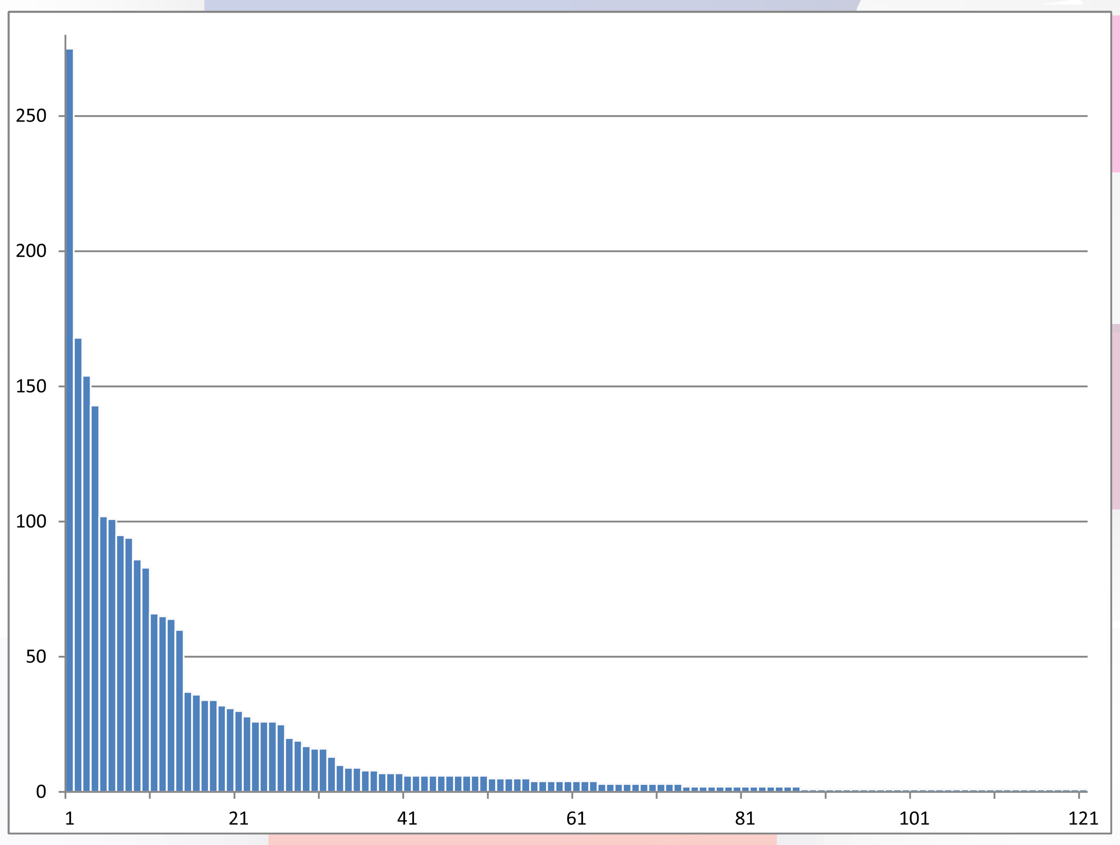
LDOS-CoMoDa
10-fold cross validation
2296 ratings
1232 movies
121 users

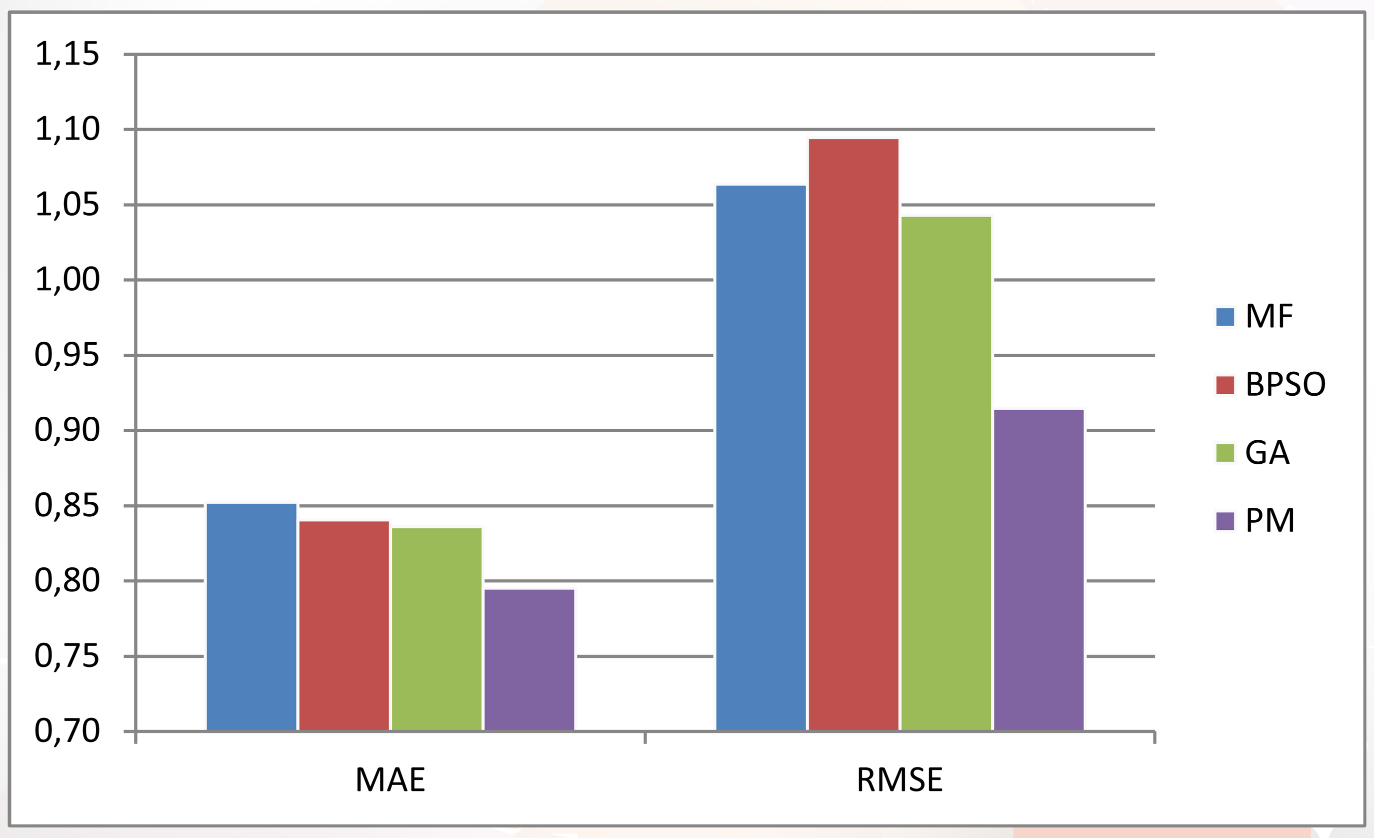


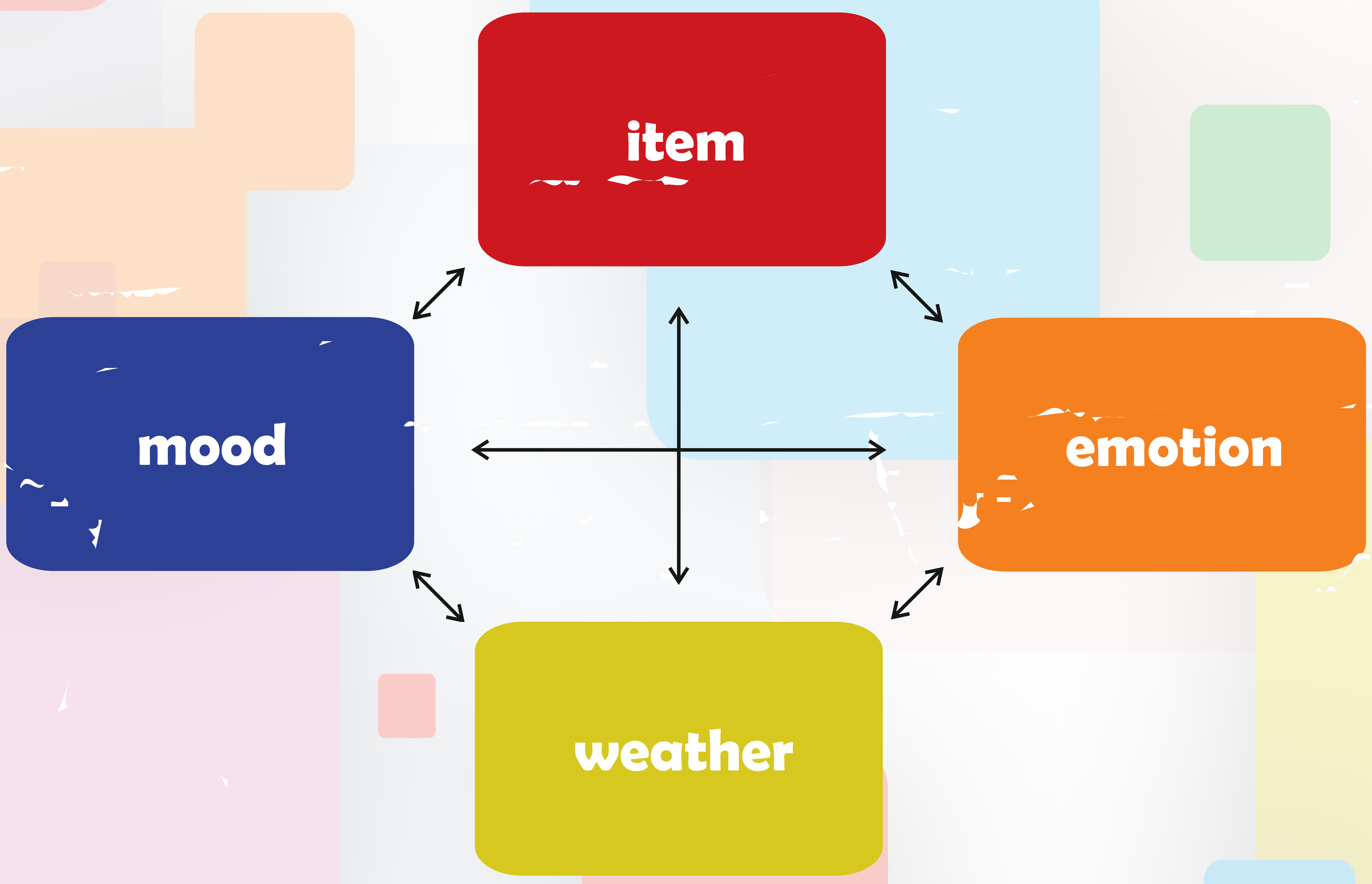
$$\mathrm{Rating}_{u\in Users,\, i\in Items} = \kappa n \left(\frac{\sum_{j=1}^{|I|-1} \left(\left(\log_{|I|-1} \sqrt{j} + 1 \right) \mathrm{history}(u) \right)}{|I|-1} \right) + (1-n)\, \mathrm{sp}(i,u)$$

	MAE		RMSE	
Similar users	ARP	PM	ARP	PM
3	1,12	**0,79**	1,24	**0,91**
5	1,11	0,79	1,23	0,91
10	**1,01**	0,80	1,23	0,92
20	1,06	0,80	**1,20**	0,92
Avg.	1,08	0,79	1.23	0,91

P@	Number of similar users: 3		5		10		20	
	SC	PM	SC	PM	SC	PM	SC	PM
1	0,023	0,040	0,028	0,046	0,027	0,041	0,017	0,045
3	0,022	0,023	0,025	0,025	0,017	0,018	0,014	0,021
5	0,022	0,022	0,024	0,021	0,016	0,017	0,013	0,014
10	0,019	0,020	0,021	0,014	0,015	0,015	0,012	0,011
Avg.	0,021	0,026	0,024	0,027	0,019	0,023	0,014	0,022







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