GROUP RECOMMENDATION OF MULTIMEDIA CONTENT

Eduard Fritscher
supervisor: **Michal Kompan**

MOTIVATION

- Large information burst on the Internet
- Absence in the domain
- Personality awareness in recommendation
- Trends in social collaboration

GOALS

- Creating a personality aware group recommender
- Maximizing group satisfaction
- Non domain dependent recommendation
- Hypothesis: The use of personality awareness in group recommendation improves the satisfaction of the users in the group

DATA

TELEVIDO

- user model (user preferences, interests)
- domain model (movies, actors , genres)

FACEBOOK

- Friends of user (F)
- Published statuses of user (S)
- Photos uploaded by users (P)
- Groups in user participates (G)
- Likes of user (L)

PERSONALITY MODEL GENERATION

Use of BIG FIVE personality model

OPENNES

$$\frac{\frac{L}{L_{max}} + \frac{S}{S_{max}} + \frac{G}{G_{max}}}{3}$$

CONSCIENTIOUSNESS

$$\frac{\frac{L}{L_{max}} + \frac{G}{G_{max}} + \frac{P}{P_{max}}}{3}$$

EXTROVERSION

$$\frac{\frac{L}{L_{max}} + \frac{F}{F_{max}} + \frac{G}{G_{max}} + \frac{S}{S_{max}}}{4}$$

NEUROTICISM

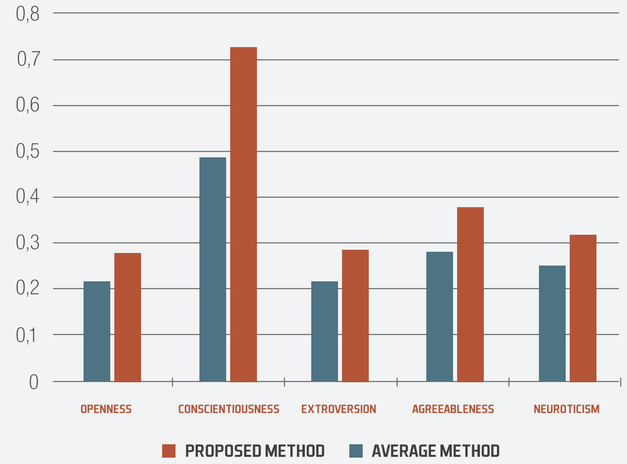
$$\frac{\frac{L}{L_{max}} + \frac{F}{F_{max}}}{2}$$

AGREEABLENESS

$$\frac{L}{L_{max}}$$

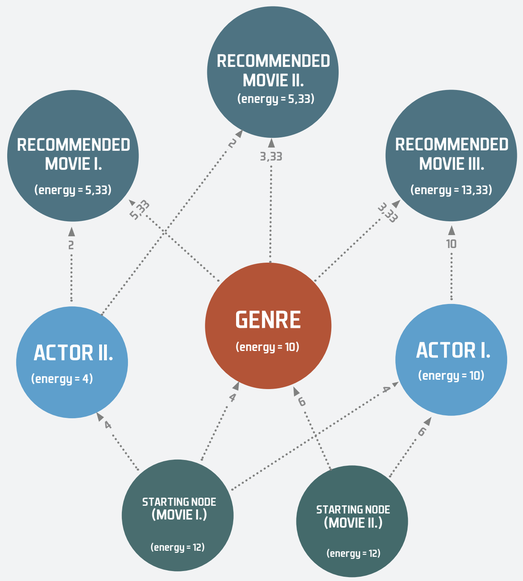
EVALUATION OF PERSONALITY MODEL GENERATION

Experiment: Finding correlation between manually created and automatically created Big Five



GROUP RECOMMENDATION

- Energy spreading algorithm
- Use of neo4j graph database



AGGREGATION STRATEGY

$$\sum_{i=0}^{n} \frac{\sum_{u=0}^{k} item_{u,i} * \left(1 - \frac{\left(\left(\left(u_{Popp} * T_{Popp} + u_{Pagr} * T_{Pagr}\right) - \left(u_{Pext} * T_{Pext} + u_{Pneu} * T_{Pneu}\right)\right) - p_{min}\right)}{\left(p_{max} - p_{min}\right)}\right)}{k}$$

EXAMPLE

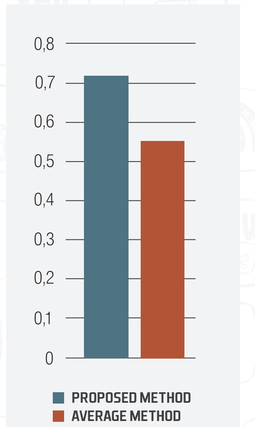
	USER 1	USER 2	USER 3
openness	0.758091425	0.441332637	0.768115942
conscientiousness	0.225944081	0.397035143	0.565217391
extroversion	0.758091425	0.441332637	0.768115942
agreeableness	1	0.717391304	0.304347826
neuroticism	0.648318043	0.748603909	0.152173913

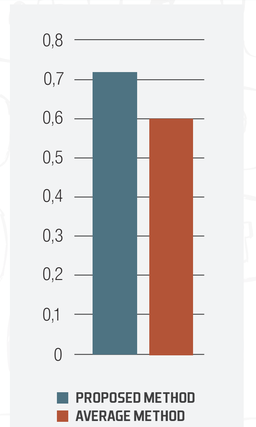
	USER 1	USER 2	USER 3
Item 1	0,5	0.3	0.5
Item 2	0.2	0.8	0.4
Item 3	0.8	0.9	0.7
Item 4	0.5	0.2	0.4
Item 5	0.7	1	0.9

	USER 1	USER 2	USER 3
Item 1	0,38234141	0,364890614	0.5
Item 2	0,152936564	0,973041637	0.4
Item 3	0,611746256	1,094671842	0.7
Item 4	0,38234141	0,243260409	0.4
Item 5	0,535277974	1,216302047	0.9

	GROUP
Item 1	0,38234141
Item 2	0,152936564
Item 3	0,611746256
Item 4	0,38234141
Item 5	0,535277974

EVAULATION OF GROUP RECOMMENDATION AND AGGREGATION STRATEGY





PRECISION OF RECOMMENDATION AGAINST USERS

	AVERAGE METHOD	PROPOSED METHOD	P
Mean	3.012500	3.607143	0.0925
SD	0.771464	0.517549	
SM	0.232605	0.195615	
N	11	7	

	SS	df	MS	F	p
Between groups	1.1513	1	1.1513	3.202	0.092
In groups	7.559	16	0.472		
Total	9.071	17			

PRECISION OF RECOMMENDATION AGAINST GROUPS (GROUP SATISFACTION)

STU FIIT
Faculty of Informatics and Information Technologies
Slovak University of Technology

eduard.fritscher@gmail.com

Informatics and Information Technologies
Student Research Conference

PeWe@FIIT
personalized web group