

School of Computer Science and Engineering **College of Engineering**

Opinion based Intelligent Recommender System

Objective

- 1. Develop a Web Application (Twitter Sentiment Visualizer) to extract public sentiment data toward a brand name
- 2. Integrate sentiment data into recommendation algorithm (Sentiment-enhanced **Collaborative Filtering**)

Twitter Sentiment Visualizer

Technology:

- Python 3.5, VADER Sentiment, SQLite 3
- Dash by Plotly.js

Features:

(a) Sentiment Scatter Plot (b) Sentiment Pie Chart (c) Top 10 Representative Bigrams and (d) Recent Tweets Table

Web page UI (with brand 'Samsung'):



Dataset: Amazon 5-core (ratings & reviews) **Algorithms:**

Sentiment-enhanced

Collaborative Filtering

- Singular Value Decomposition (SVD)
- SVD++
- Non-negative Matrix Factorization (NMF)

Performance Metrics:

- Root Mean Square Error (RMSE)
- Mean Absolute Error (MAE)

Technology:

- Python 3.5, VADER Sentiment, Surprise

Result:

MAE	SVD	SVDpp	NMF
with sentiment	0.6925	<u>0.6873</u>	0.8358
without sentiment	0.8937	0.8866	1.0377

RMSE	SVD	SVDpp	NMF
with sentiment	0.9024	<u>0.9005</u>	1.0658
without sentiment	1.1563	1.1587	1.3424

	2594
folding phone	2304
foldable phone	
emojis ugly	9296
sent sm	
new update	
worst customer	
demand already	
already weak	
s10 demand	
13.30.13.137000	
2019-03-05 13:58:10.845000	Samsung Galaxy S10's Display Gets Highest Ever A+ Grade From DisplayMate https://t.co/yxWyVQopXX@inkPointTech @Gadgets360 0
2019-03-05	Samsung Galaxy S10 Plus review: Almost apex https://t.co/MkjYQ3dAc1 @slideme https://t.co/0BzFXwGVt6 0

Student: Sentosa Adjikusuma Supervisor: Dr Li Fang

Conclusion:

1. Social media (Twitter) data can be extracted and processed to help user understand public opinion toward particular brand name

2. Integrating sentiment data improved the performance of a recommender system

www.scse.ntu.edu.sg