When-To-Post on Social Networks

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Motivation

- Maximize audience engagements:
  - Reach friends
  - Better targeting by brands
  - Schedule campaign
- Personalized schedules vs. infographics

Challenges

- Data sparsity

- Lack of open data sets

- Unique audiences

- Specificity network dynamics

Problem Setting

*For a user on social network, find the **best time to post** a message in order to maximize the probability of receiving audience reactions.*

- Consider only: replies, retweets, favorites, likes, comments.

- Weekly user behaviour cycle

- Observe only first 24hr of reactions

- 15 min time bucket

- Starting bucket is 00:00-00:15 Monday (relative to user's timezone)
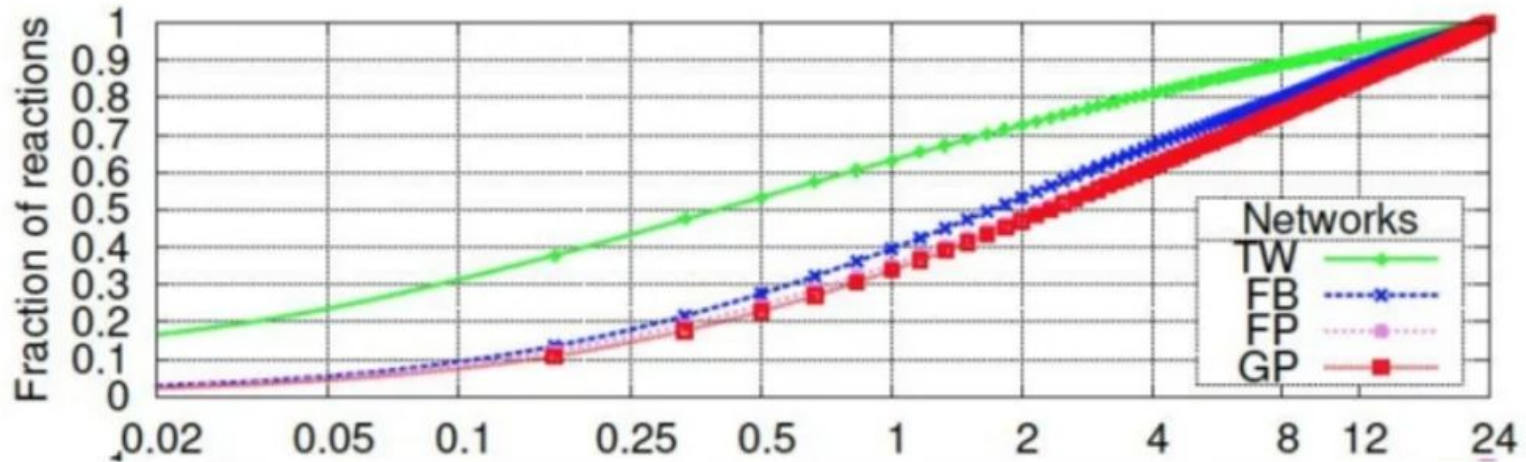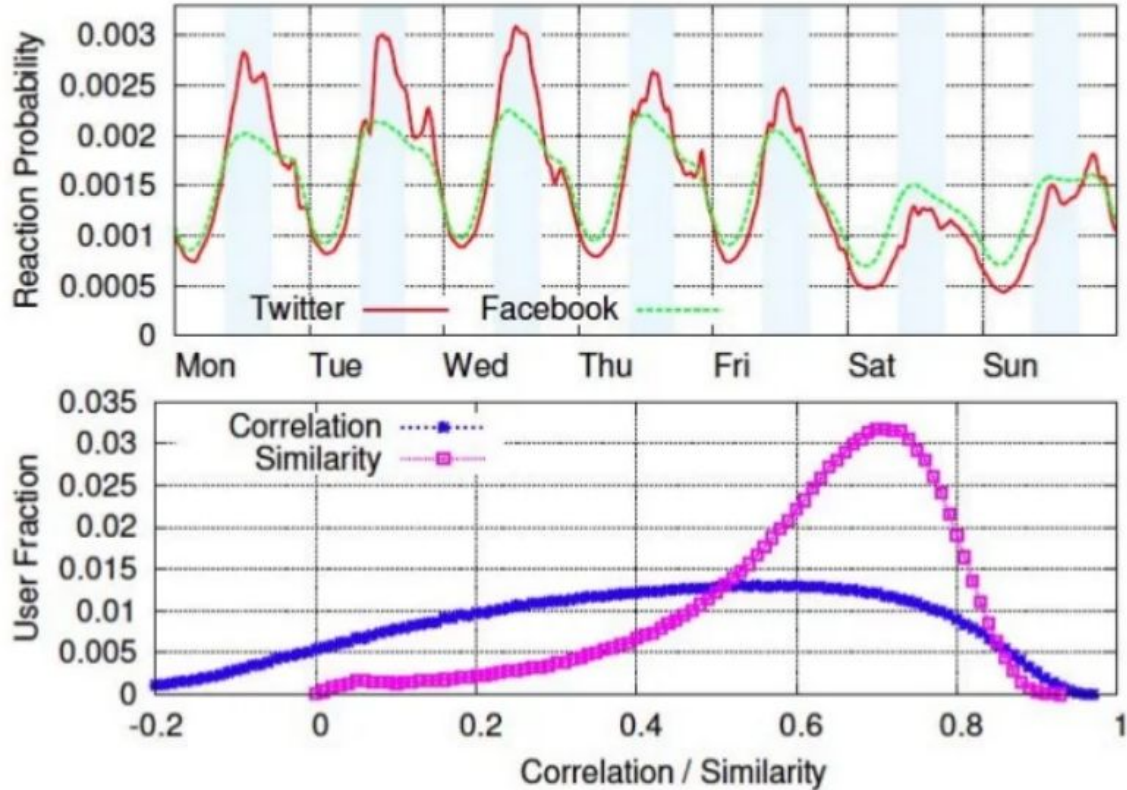
System Overview
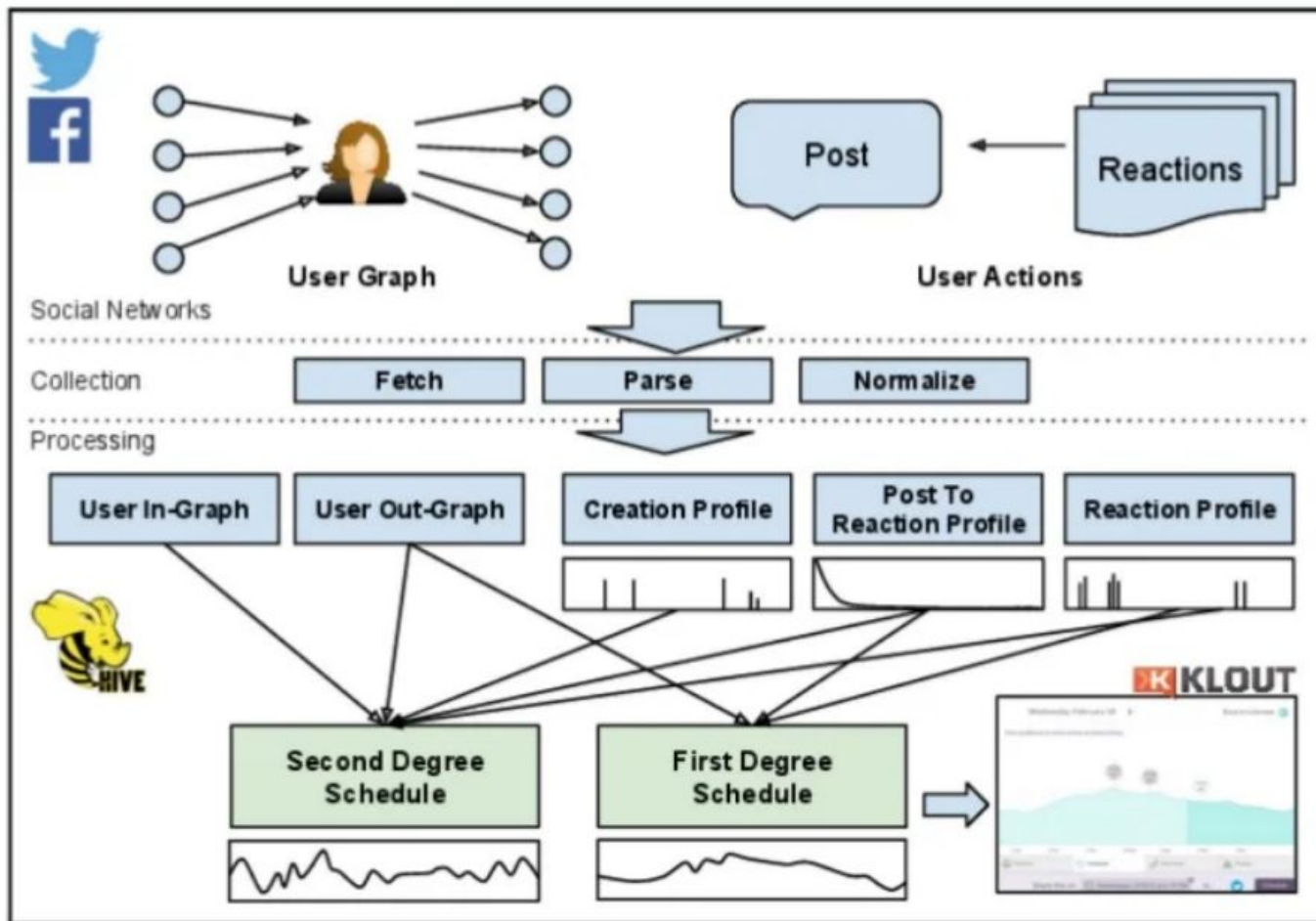
Audience Behaviour
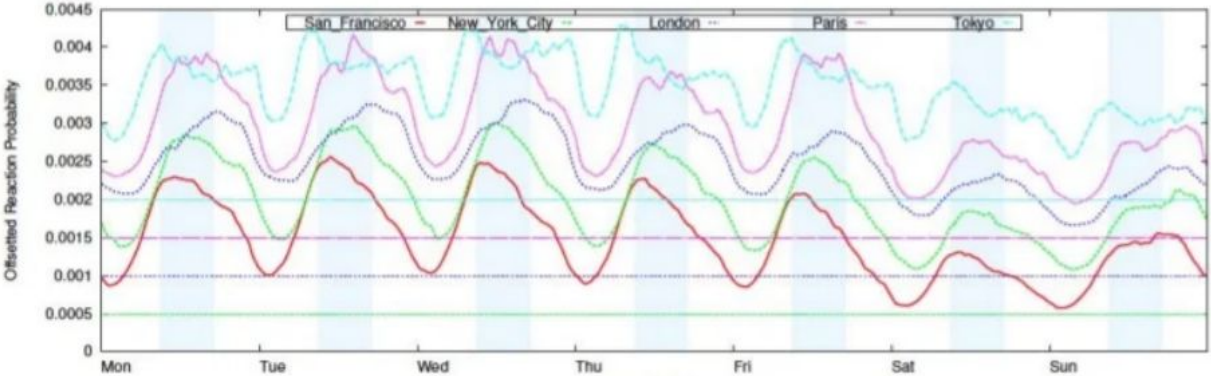
Post To Reaction Analysis

- Inherent delay

- Different networks have different engagement dynamics

- 50% of first 24h reactions **Twitter** in **24 min** while **Facebook** in **1h 42 min**
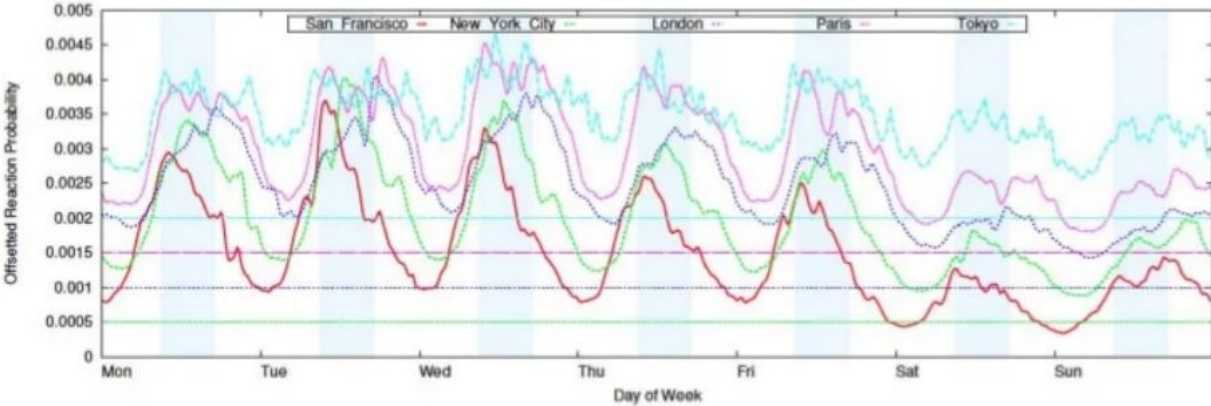
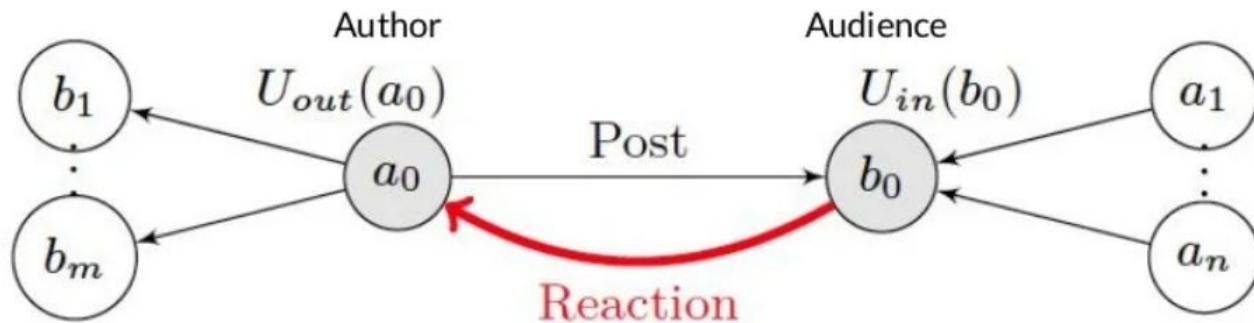# Audience Behaviour - Network

Audience Behaviour - Location

Facebook

Twitter

Personalized Schedules

Personalized Schedules

Author   Audience

$U_{out}(a_0)$ Post $U_{in}(b_0)$
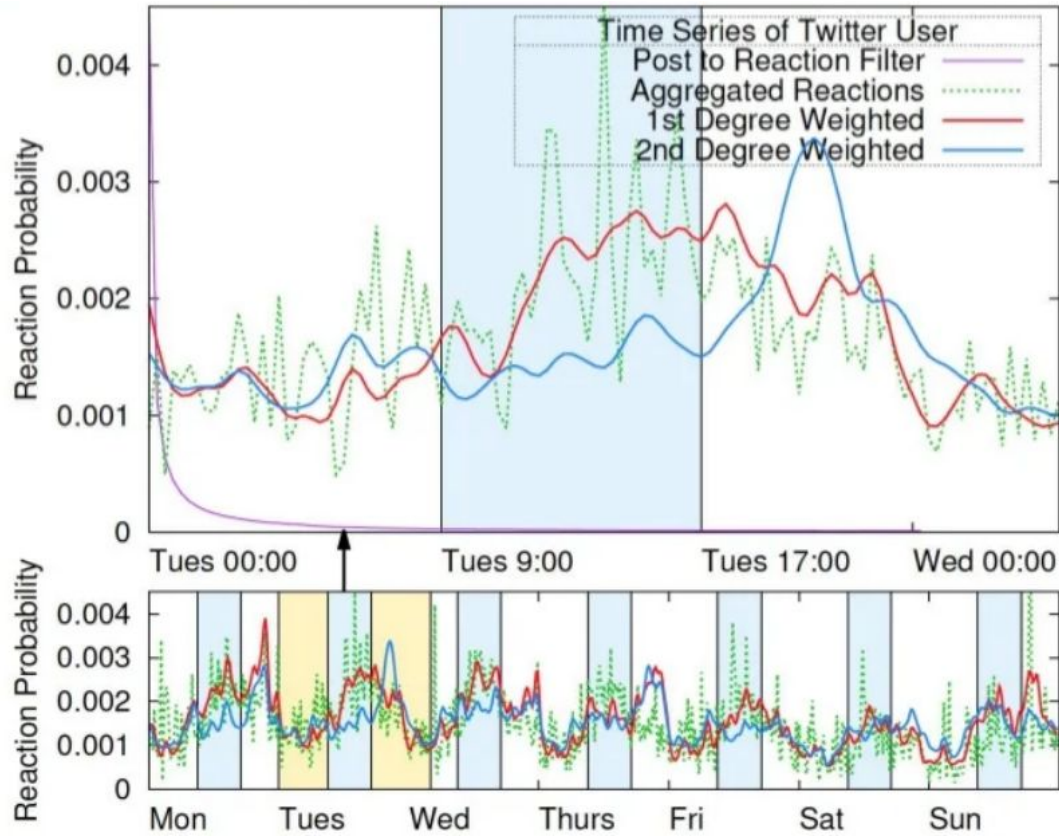
Reaction

1st Degree Schedule

- When do the users a_i create posts?
- When does a specific audience member b_0 react to the posts created by a_i?
- What is the probability that b_0 reacts to post in a certain time bucket t_k?

2nd Degree Schedule

Personalized Schedules - Twitter Example

Personalized Schedules - Evaluation
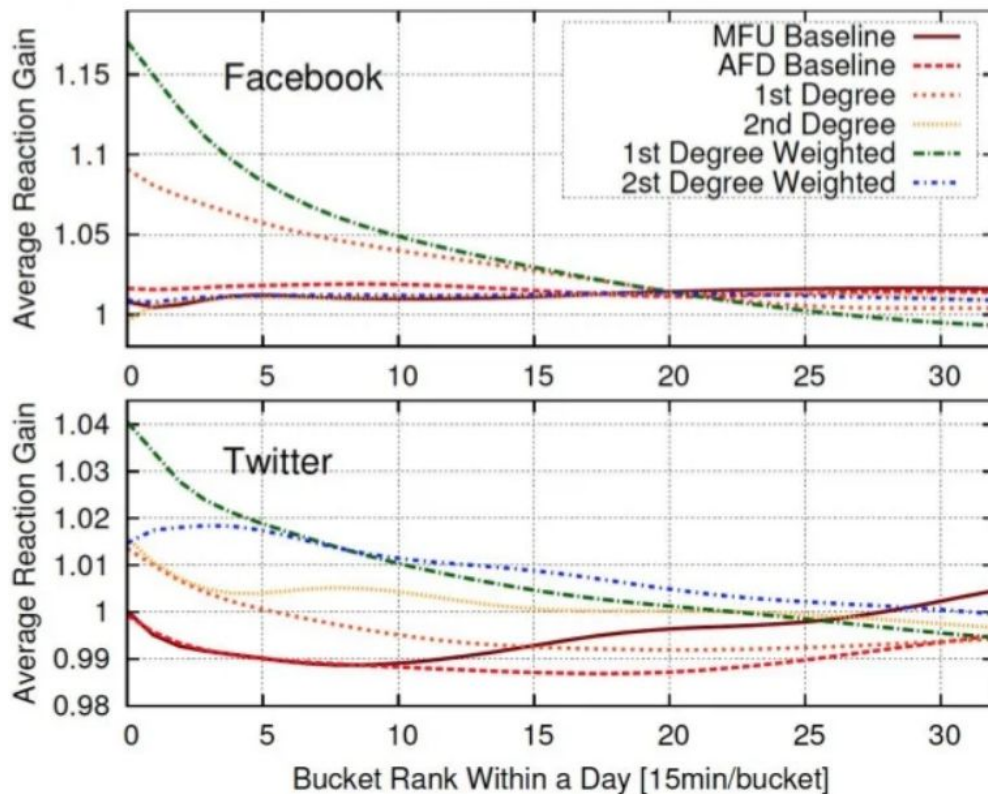
Evaluate on:

- 56 days of unseen data

- 0.5M active users

Baselines for a timezone:

- Most Frequently Used (MFU)
- Aggregate First-Degree (AFD)

Reaction gain of:

- 17% on Facebook
- 4% on Twitter

Conclusion

- Reaction times are more than 4x faster on Twitter compared to other networks.

- Audience behaviour varies across different networks.

- Users audiences across different cities exhibit different behavior patterns.

- Using personalized schedules users can see reaction gain of up to:

  - 17% on Facebook

  - 4% on Twitter