Of Pins and Tweets
Investigating how users behave across image- and text-based social networks

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Motivation

Do users have distinct behavior across networks?

Where does the content originate?

Does one network influence the other?

Are OSNs used for the same purpose?

Do people have a strong identity or do they adapt to the context of each network?
eat.sleep.wear.
My name is Kimberly and I am a graphic designer, fashion blogger, and cupcake enthusiast. // http://eatsleepwear.com

LA / NYC - eatsleepwear.com

Twitter Link
Dataset

Daily crawling over 82 days

30k users

~2mi pins

~4.5mi tweets
Bridging Twitter and Pinterest
How to translate Twitter activity to a Pinterest equivalent?

- **FILM, MUSIC & BOOKS**
  - "The Pixies opening for us is like The Beatles opening for us. There's no way we can follow the Pixies" - Thom Yorke

- **HUMOR**
  - Stephen Fry on American vs British #Comedy youtube.com/watch?v=8k2Abq...

- **GEEK**
  - #Programming in movies vs. programming in real life with @m_janko. hacker vine.co/v/hPTA6I9AqQ
  - Mississippi John Hurt | by Bernard Gottfried
  - Programming in movies vs. programming in real life - YouTube by Code Comedy
Mapping Sessions to Categories

Tweets, Pins

L-LDA

Topic words

Topicalized Sessions

AMT worker agreement (5/10)

Mapping

Topic, Category

Categorized Sessions

Categories

Pinterest

Pinterest

Amazon
Exploratory analysis
User identity across networks
Content sharing between networks
  - Category popularity
  - Pollination
Exploratory Analysis
Activity
Daily Activity Pattern

![Graph showing daily activity patterns for Twitter and Pinterest.](image)
User Identity Across Networks

Do users have different identities on Pinterest and Twitter, or do they share one identity across both OSNs?
Usernames

Levenshtein Ratio

Ratio = 1 (Equal)

Ratio = 0 (Completely Different)
**Personal Description (bio)**

Cosine Similarity (LIWC)

CS = 1 (Equal structure)
CS = 0 (Completely different)
Content Sharing Between Networks

1. Are the most popular categories in Pinterest also popular in Twitter?

2. How do users distribute their content across categories?

3. Can you predict the categories of user’s tweets based on their pins, or vice-versa?

4. Do users’ session streams exhibit locality of interest?
Are the most popular categories in Pinterest also popular in Twitter?
How do users distribute their content across categories?

Shannon Entropy

Low entropy = More specialized

High entropy = Less specialized
Can you predict the categories of user’s tweets based on their pins, or vice-versa?

**Cross Entropy**

Low entropy = **Better** model

High entropy = **Worse** model

![Graph showing the relationship between Cross-Entropy and the probability distribution](image)
Do users’ session streams exhibit temporal locality of interest?

Stack Distance

Low SD = Bursts of a same topic

High SD = Highly distributed reviews of the same topic
Which OSN does **content appear first** in? Do ideas tend to **originate** on **Pinterest** and then move to **Twitter**, or vice-versa?
How do users transition?
Where does content appear first?

1. Count how many times each category appears first in one network than the other.

2. Calculate the relative difference between those counts for each user (Network Leaning).

Interpretation:
-1 to 0: Content appears first in Twitter
0 to 1: Content appears first in Pinterest
Where does content appear

mean = 0.15  median = 0.16  skew = -0.2
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