

# #mytweet via Instagram: Exploring User Behaviour Across Multiple Social Networks

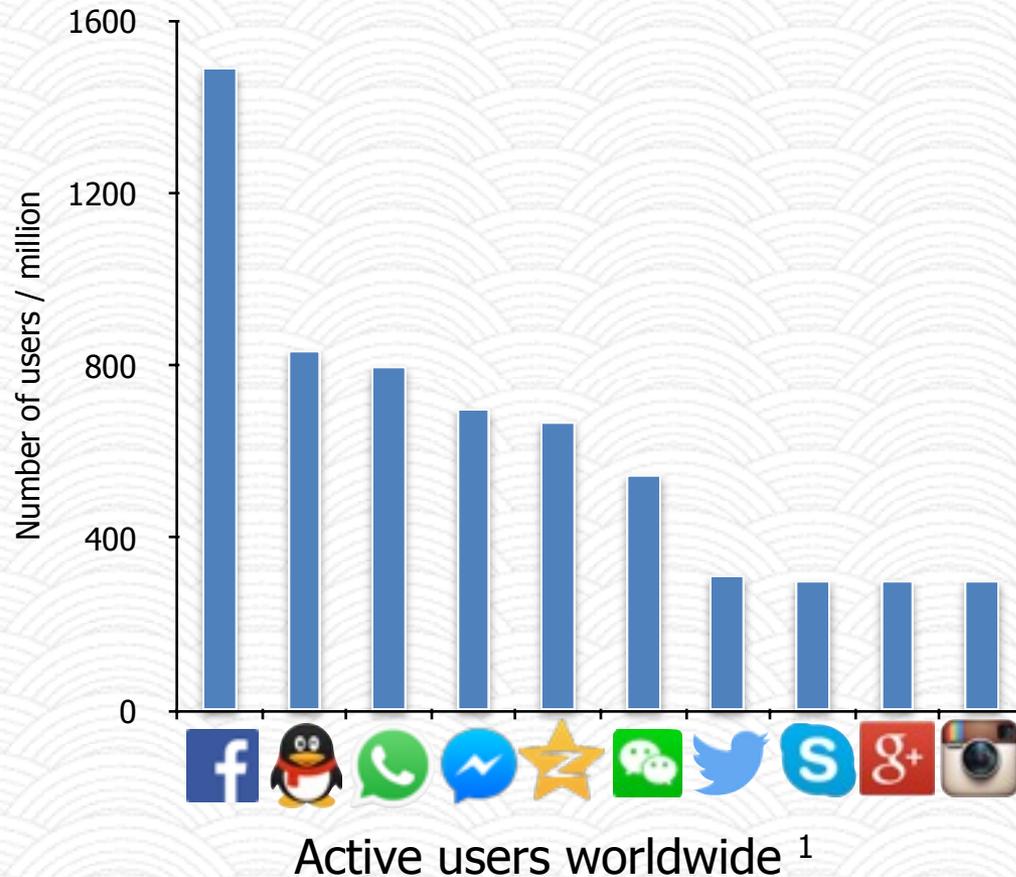
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Web Information Retrieval / Natural Language Processing Group

# Background



- 74% of Internet users use Online Social Networks (OSN)<sup>2</sup>
- Average user has 5.54 Social Media accounts<sup>3</sup>
- Uses 2.82 sites actively

1. <http://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>

2. <http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/>

3. <http://www.globalwebindex.net/blog/internet-users-have-average-of-5-social-media-accounts>

# Motivation

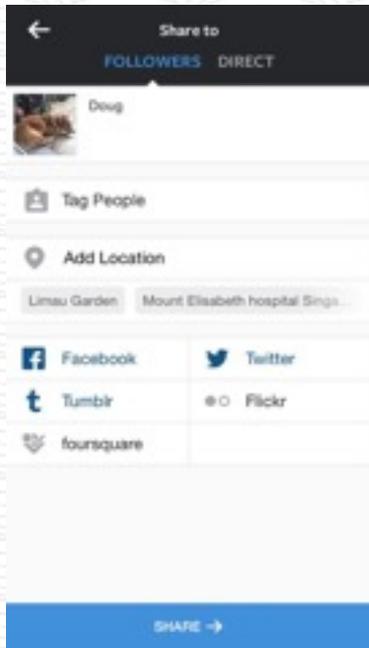
- Most research done on single OSN
- Holistic modelling of users
- Multi OSN research:
  - Forecasting evolution of trending topics across different OSNs (Althoff et al. 2013)
  - Internetwork interactions (Chen et al. 2014)
  - How users behave across Image-based and Text-based networks (Ottoni et al. 2014)

## Scope

- 6 OSNs: Flickr, Google+, Instagram, Tumblr, Twitter and Youtube
- Multi-network analysis of user behaviour
- Cross network interactions
- Publicly available data
- No image / video analysis

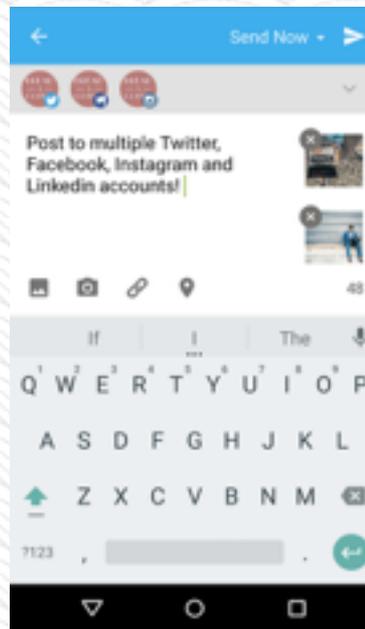
## 3 ways to cross-share

1. Native feature



Instagram

2. Third party app



Hootsuite

3. Copy and paste



Twitter to Facebook

# Outline

- Introduction
- Dataset
- User Profile
- Posts
  - Cross-sharing
  - Temporal Analysis
  - Topic Analysis
- Conclusion



## Making the American Dream a Reality

👍 + ➦ Email Me



Today's market is steadily increasing which is good news for home owners! However, buyers aren't out of the picture since interest rates on loans are still low, making it a great time to buy or invest in real estate.

I am a Realtor from California's Central Valley who specializes in first time home buyers, buyers on a time budget and listings. Technology is my friend and can be contacted any time of day or night. I work around your schedule and take the hassle out of buying by teaming up with the best local lenders in the business. Call me today and let's get you into the home you deserve!



- Keller Williams Realty Central California Homes
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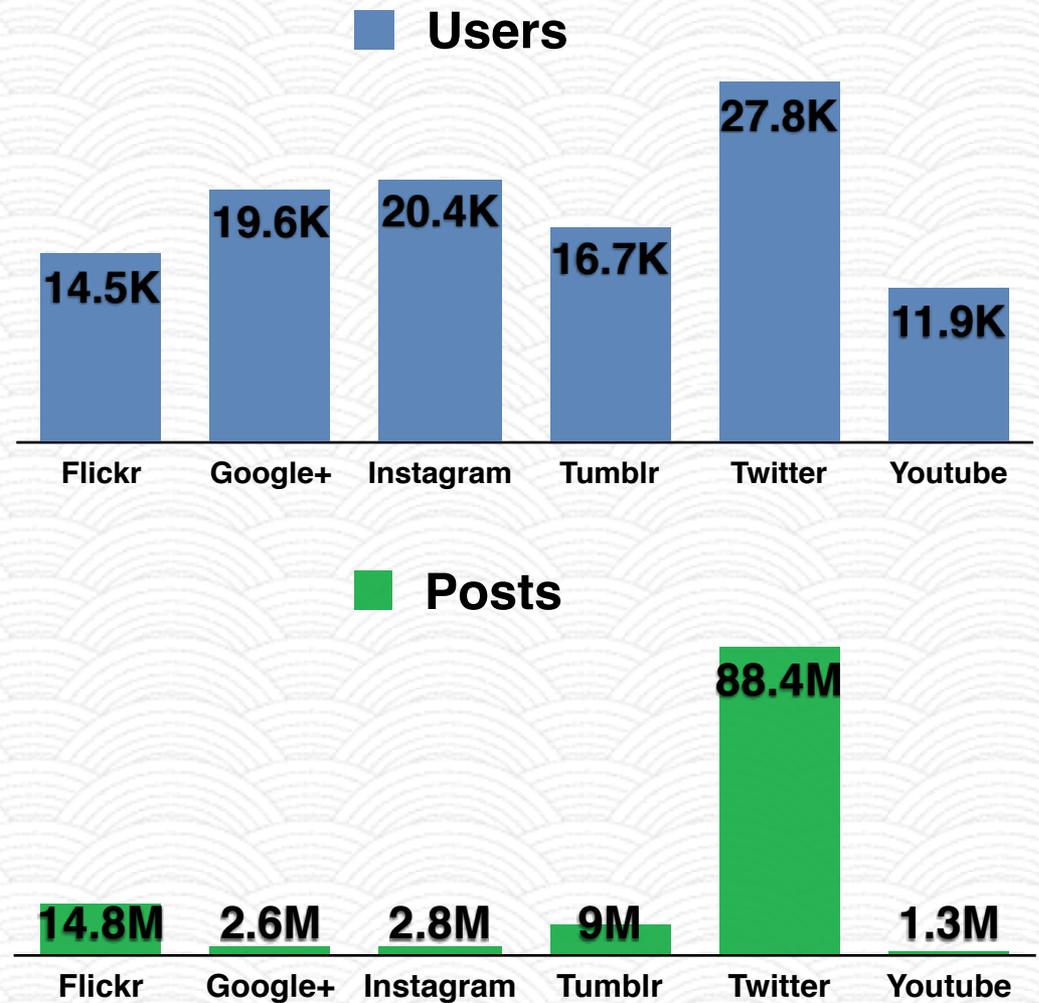
Profile Description

OSN accounts



# Dataset

- 6 OSNs
- 2011 - 2014
- 32 K Users
- 4 accounts / user



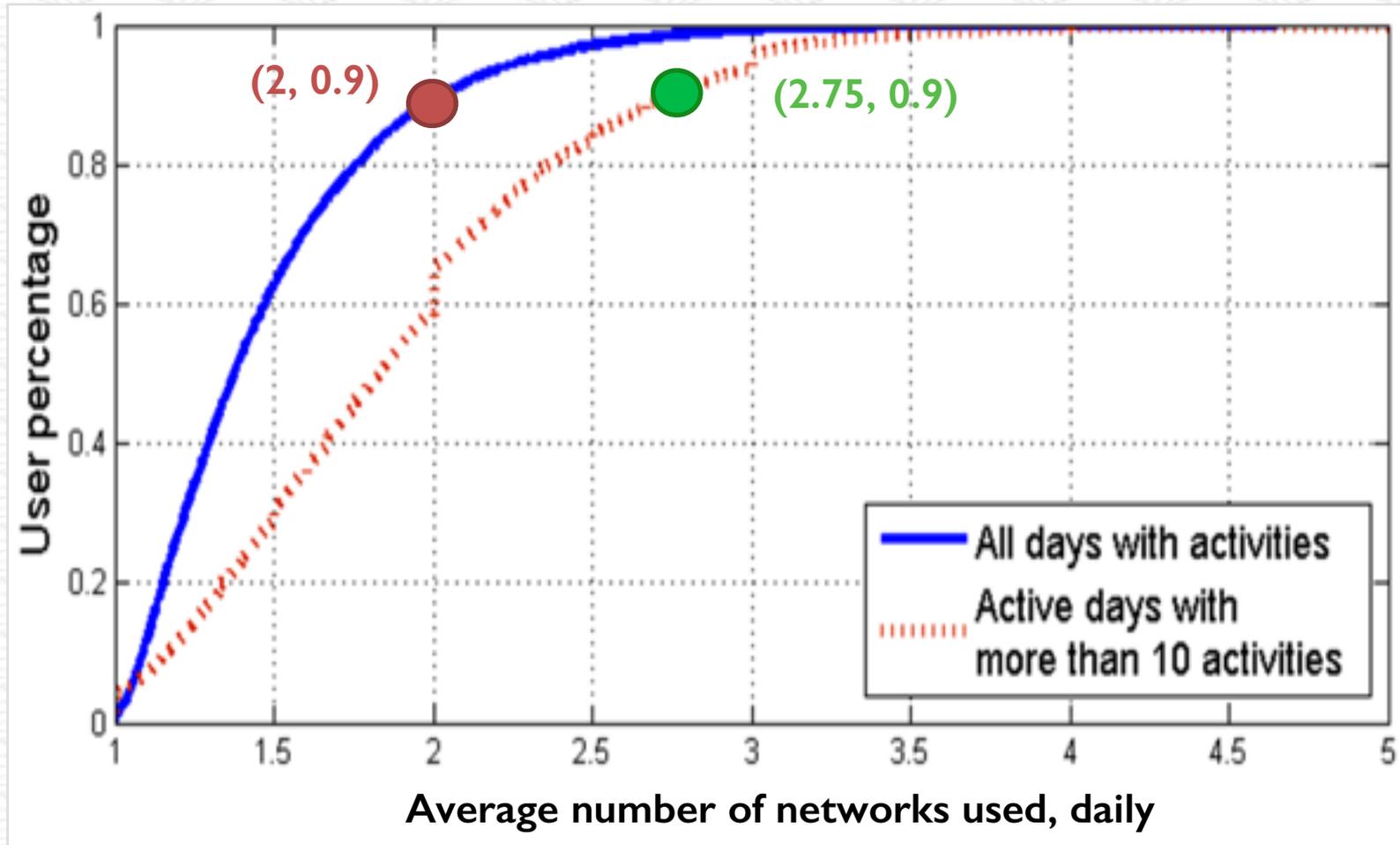
# User Statistics

also use:

	<i>Twitter</i>	<i>Google</i>	<i>Instagra</i>	<i>Tumblr</i>	<i>Flickr</i>	<i>YouTube</i>
<i>Twitter</i>		79.4	76.4	65.2	64.4	56.2
<i>Google</i>	<b>96.4</b>		73.5	61.7	61.0	65.0
<i>Instag</i>	<b>96.7</b>	76.8		68.5	60.4	51.0
<i>Tumblr</i>	<b>96.0</b>	74.9	78.8		59.4	49.2
<i>Flickr</i>	<b>96.0</b>	74.8	71.0	60.1		53.3
<i>YouTub</i>	<b>95.5</b>	<b>84.1</b>	68.4	56.6	60.9	

% of users who use:

# Activity Statistics



- 
- More networks utilised on days with higher activity

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I'm a Digital **Media Specialist** passionate about self **education**, lifelong learning...



Explore **Dream Create**.



**Knowledge is freedom**. I run a **website** called DIY Genius that helps young **people self education**.



All my **photographs** are posted under the creative **commons non commercial attribution**...

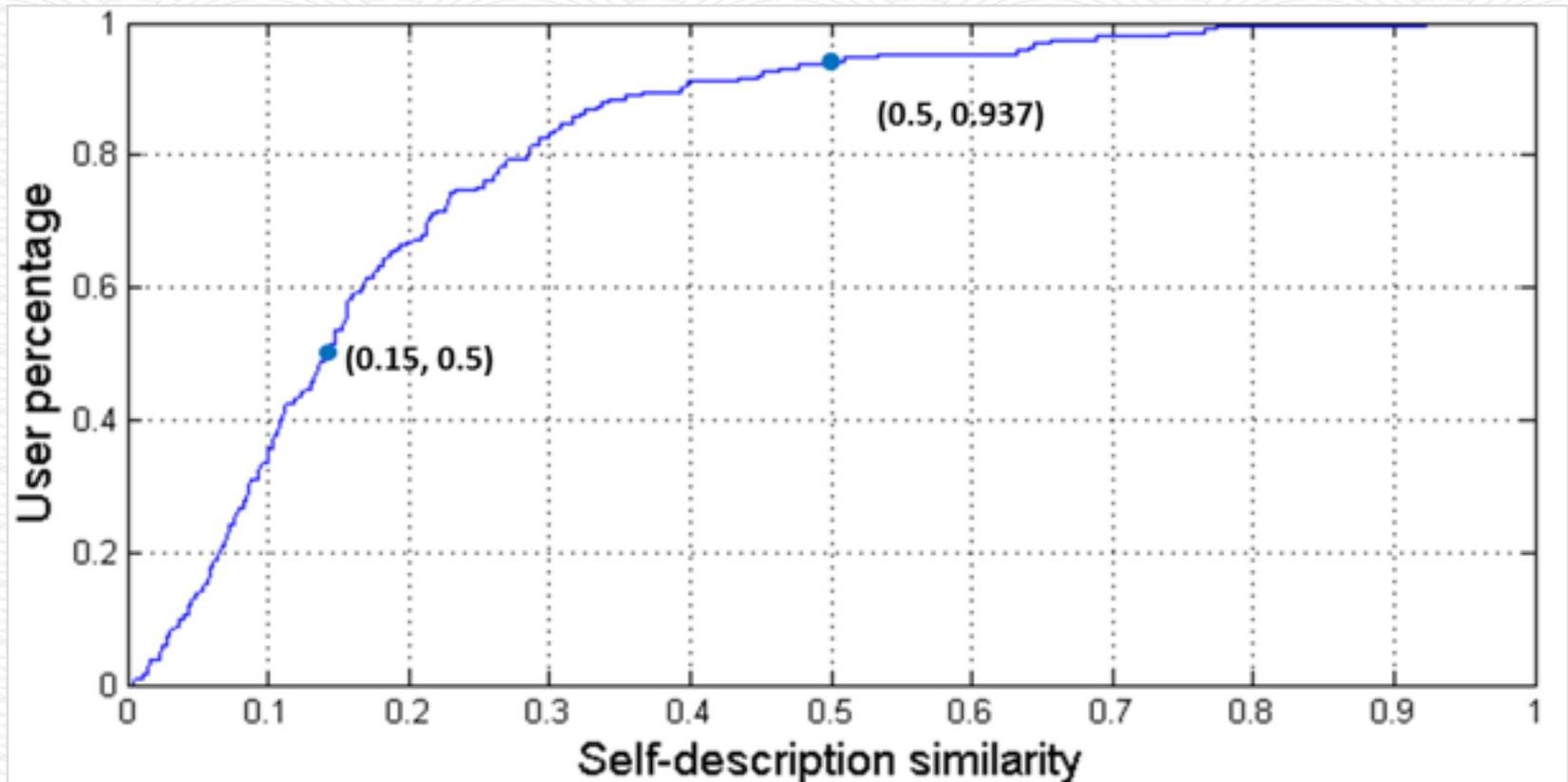


I'm interested in digital **media, adventure sports, and mountains**.



A **collection of videos** I've filmed on my **iPhone** while **hiking skiing and biking** in the **mountains**.

# Self-description Similarity



- Pairwise Jaccard Coefficient

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# Cross-sharing

- Multicasting user activity over multiple social networks.
- Source-sink relationship between OSNs

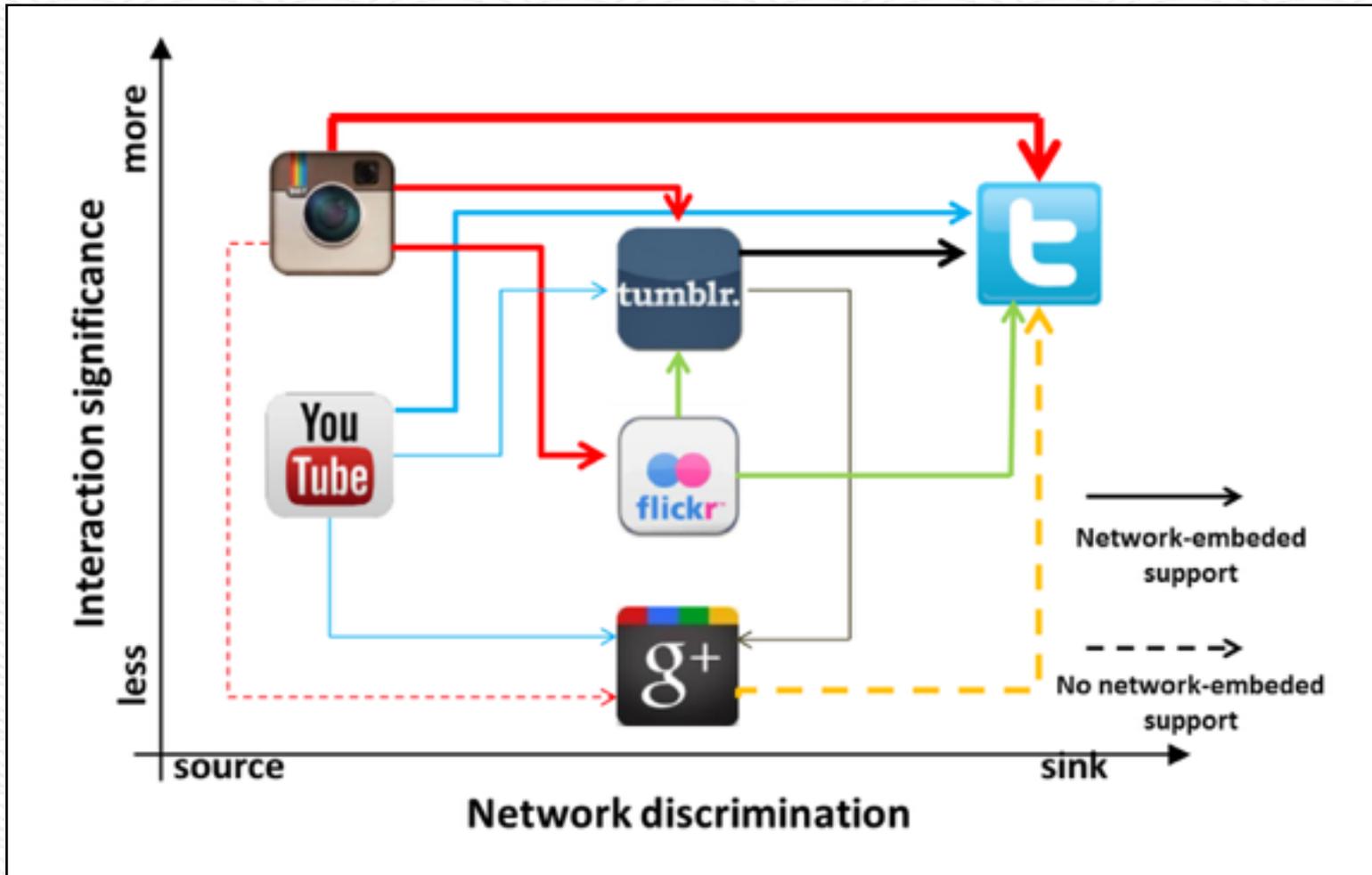


Source



Sink

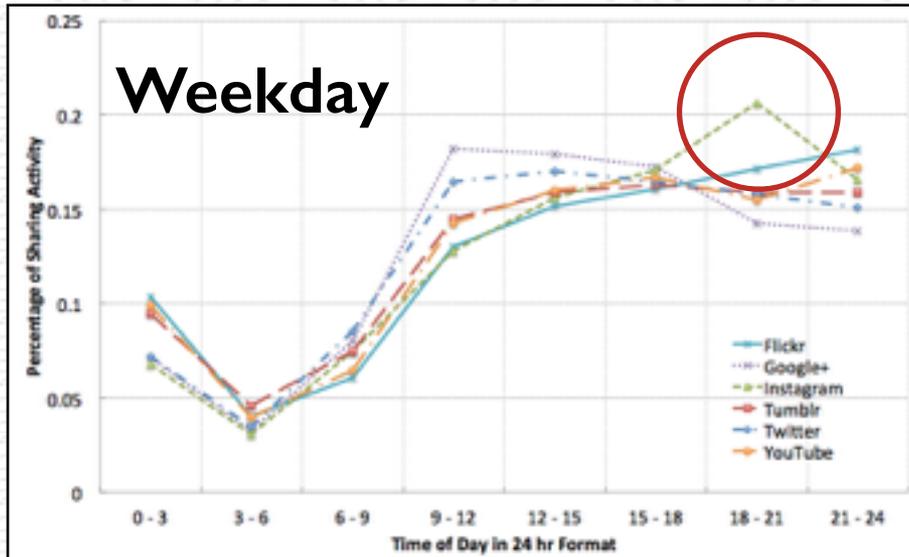
# Source - Sink Graph



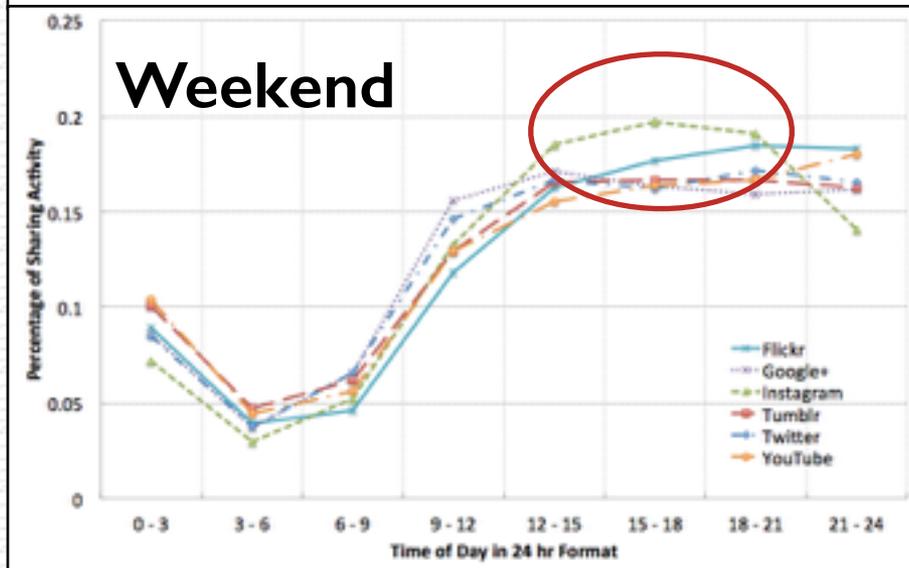
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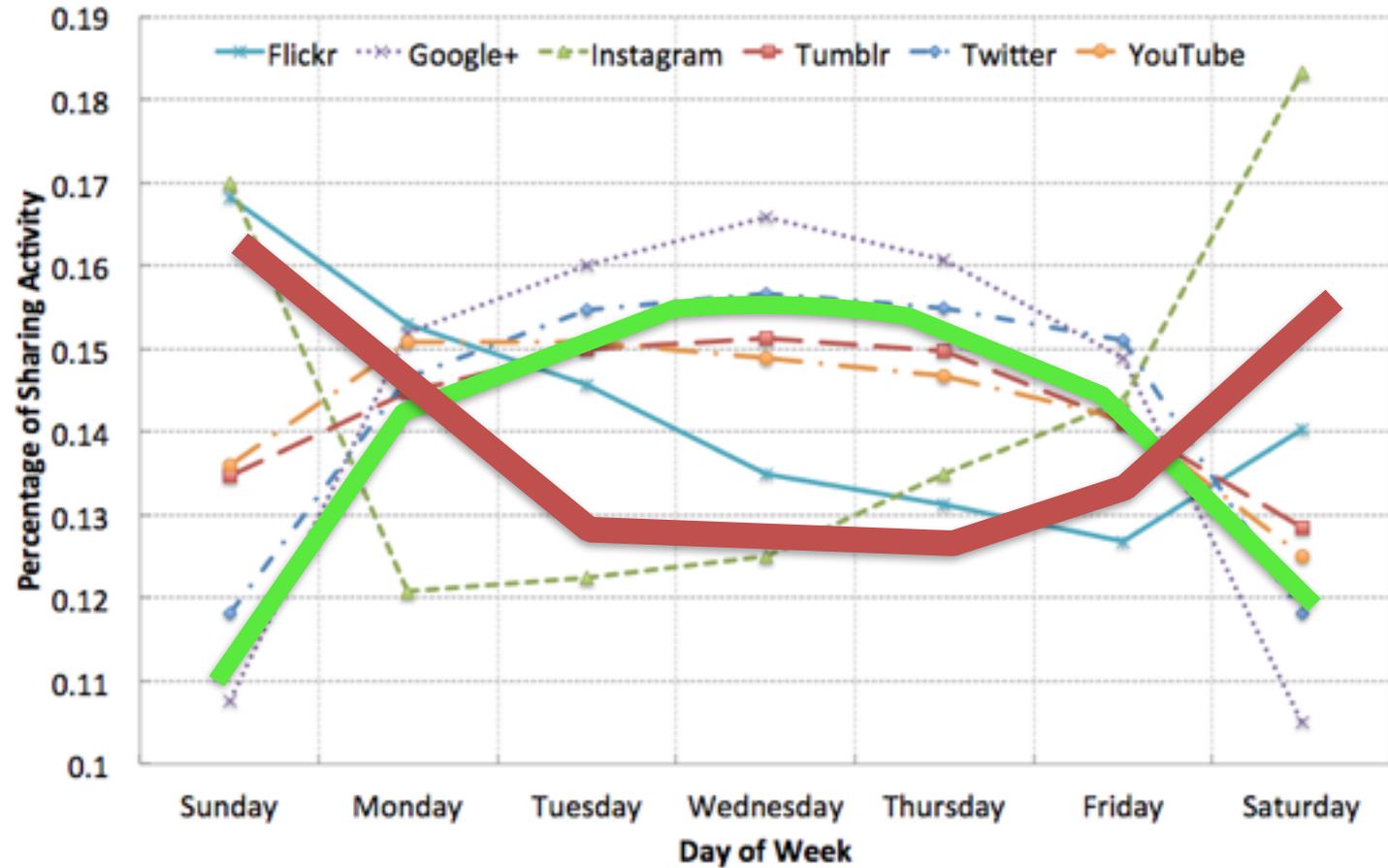
## Time of Day



- Different peaks for activity levels on weekend and on weekdays



## Day of Week

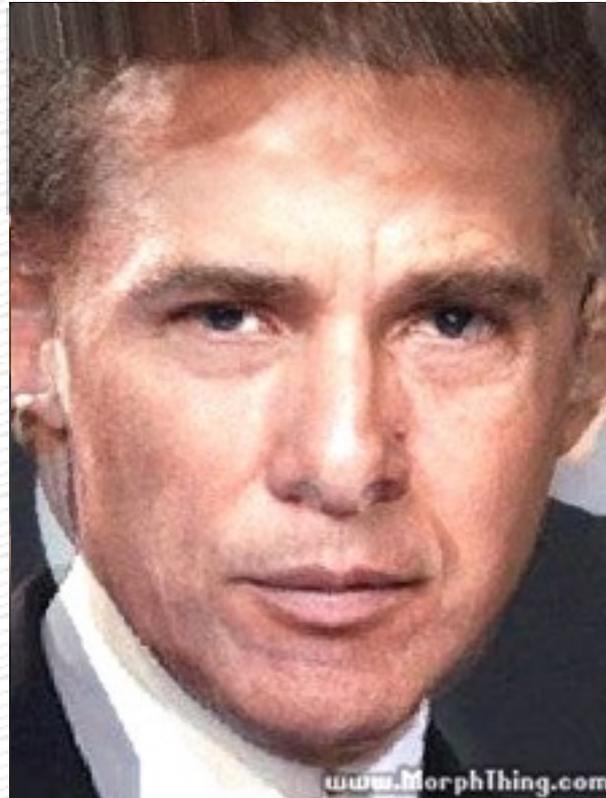


» Different uses for OSNs - personal vs work

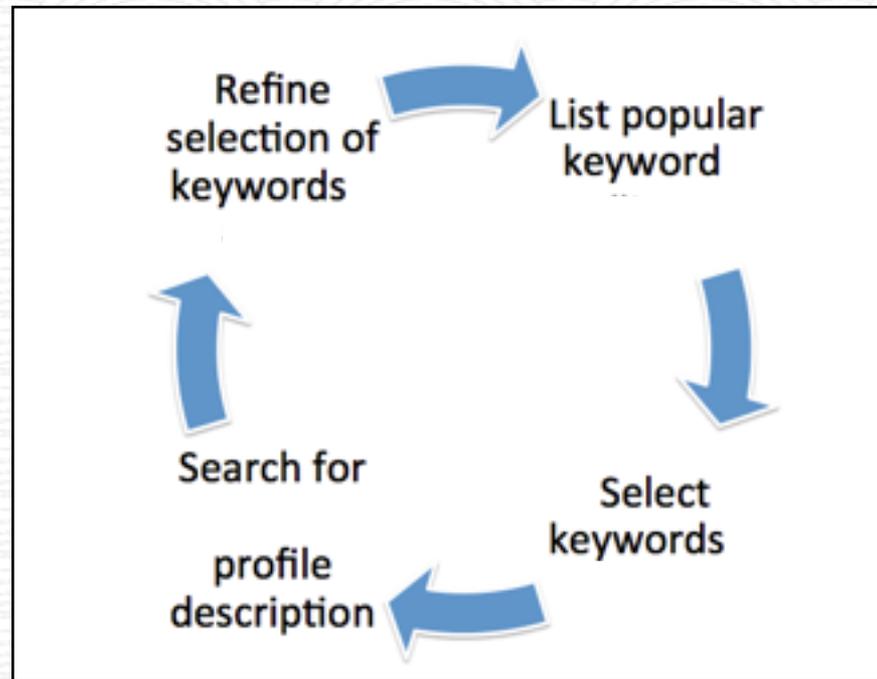
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## The “Average user”

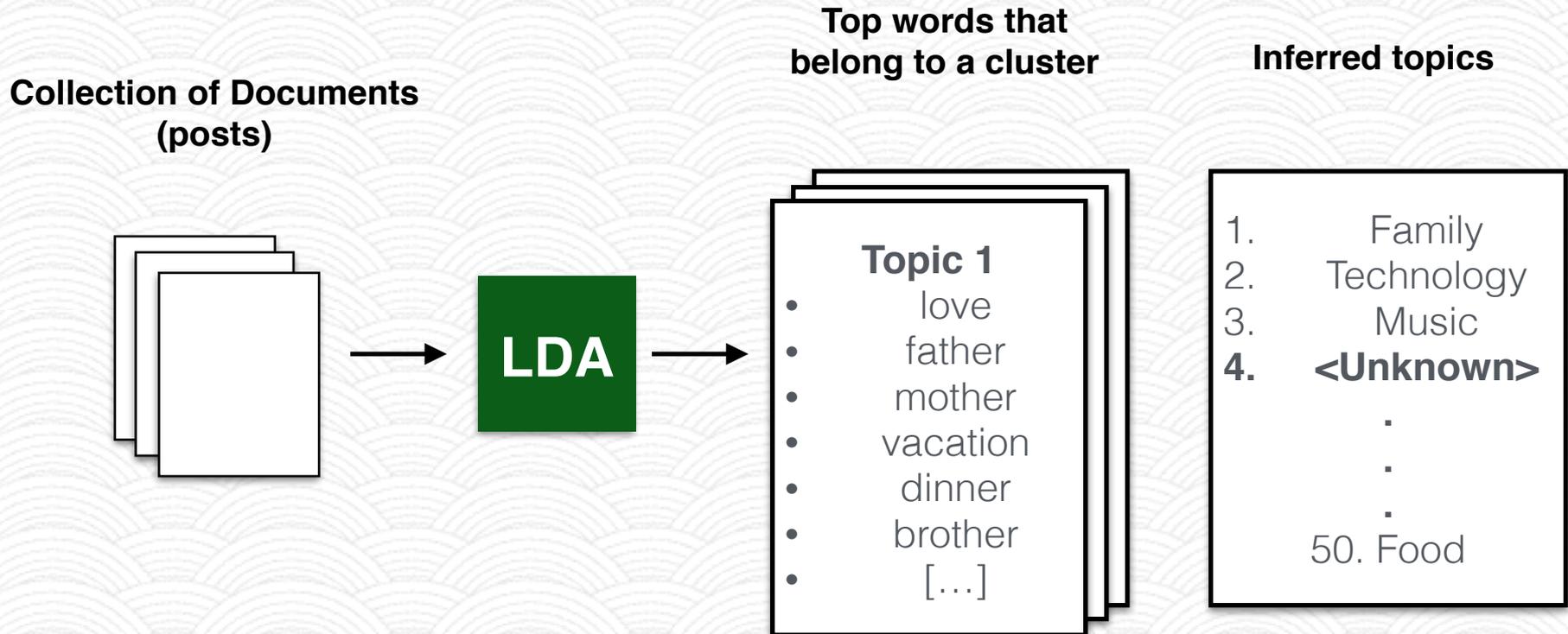


# Meso-Level Groups: Profession



- User description keywords
- 3 professions: Developer, Producer, Marketing expert
- How do different professions use different OSNs?
  - OSN for work, OSN for personal use

# Topic Modeling



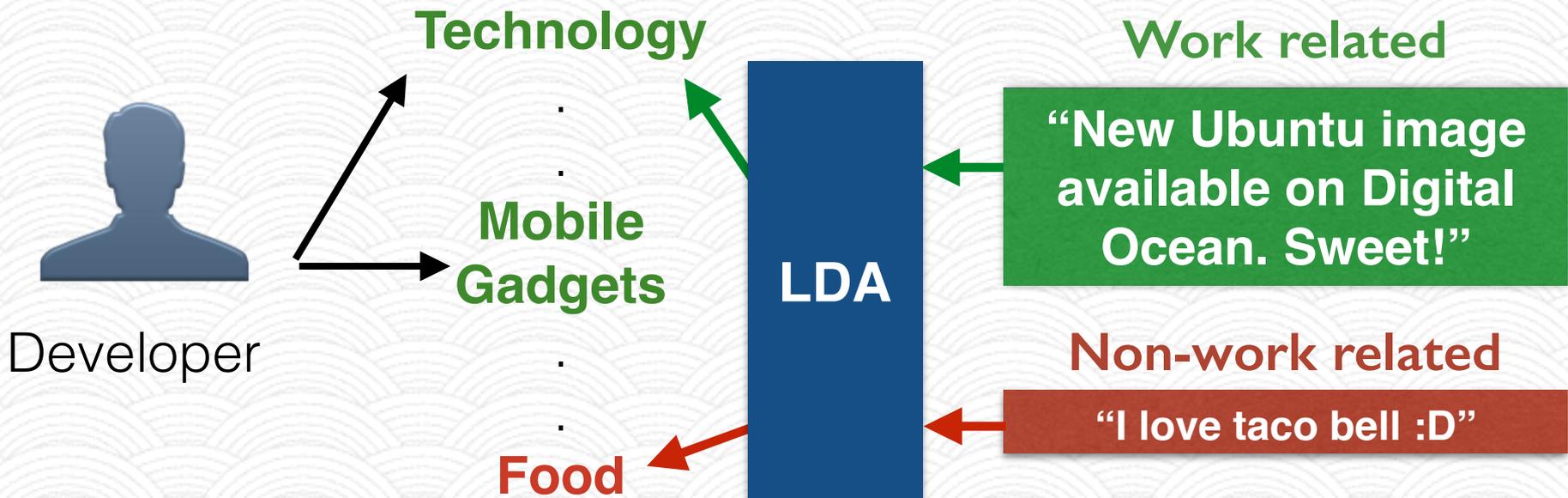
- Latent Dirichlet Allocation (LDA)(Blei et al., 2003)

## Matching

**Profession**

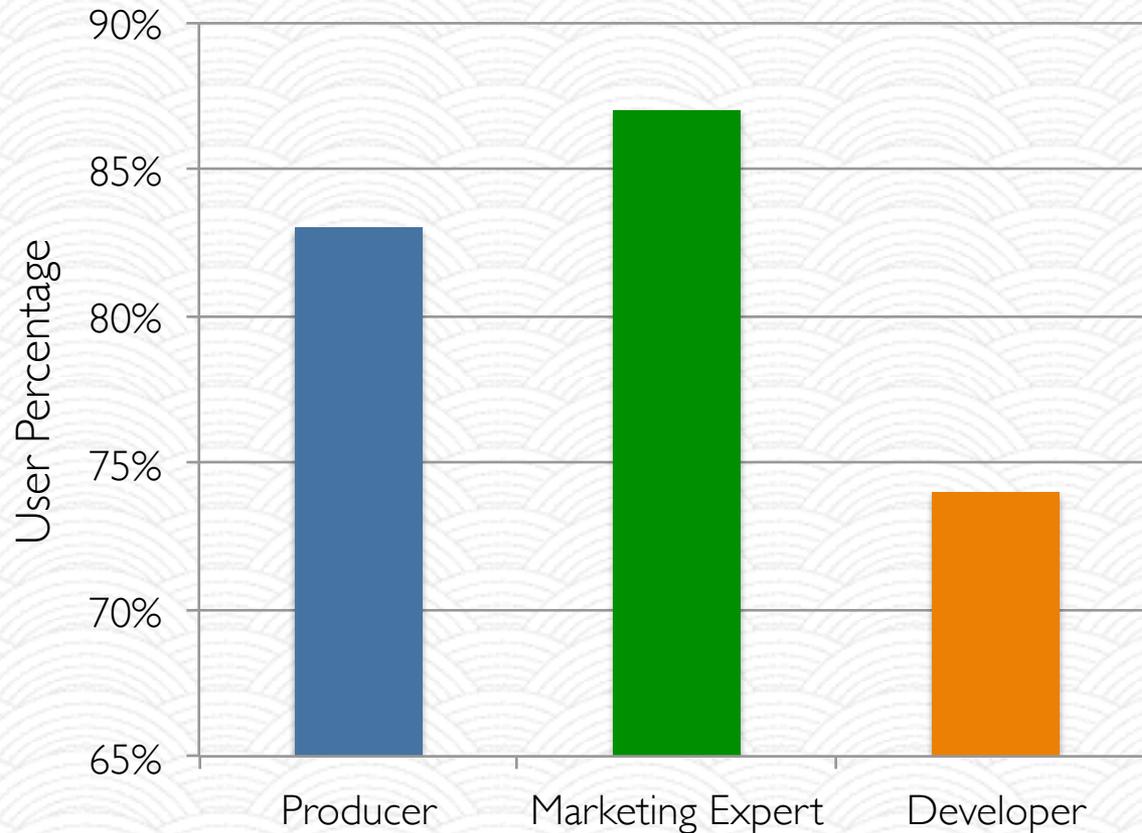
**Topics**

**Posts**



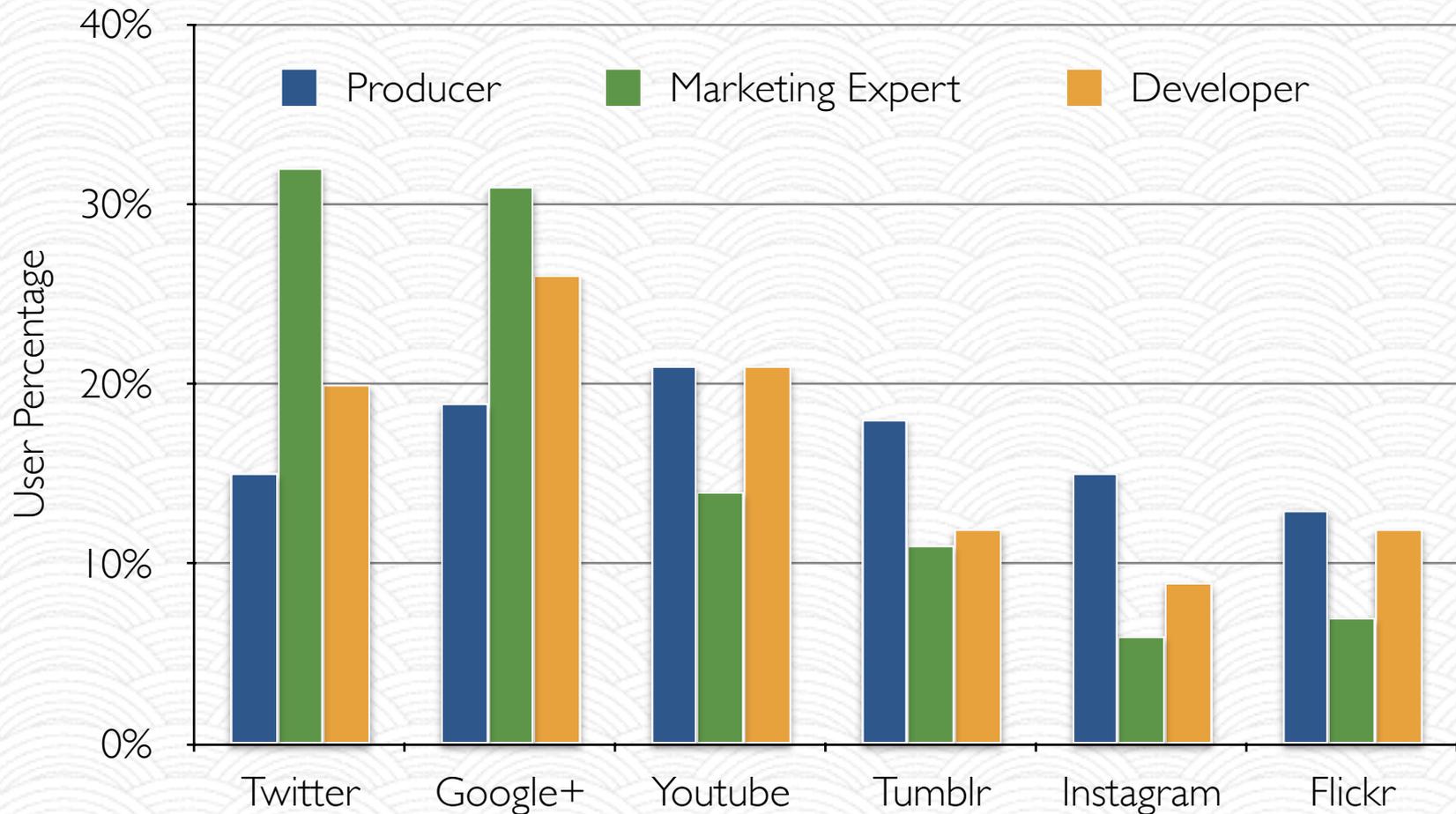
- Match topics to professions manually

## Many People are Workaholics!



Workaholic: Top 2 frequently topics are work related

## OSNs for Work Related Posts



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# Conclusion

- 6 OSNs: Flickr, Google+, Instagram, Tumblr, Twitter and Youtube
- Most users describe themselves differently.
- OSN cross-sharing directionality - sink and source
  - YouTube and Instagram are popular content originators
  - Twitter is a content aggregator
- OSNs for work and personal use
- Dataset will be available at: <http://wing.comp.nus.edu.sg/downloads/aboutme>



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Thank you!



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