网络科学第四讲

2019版

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提纲

- Social Media Network

This lecture's slides adapted from :

R. Zafarani, M. A. Abbasi, and H. Liu, *Social Media Mining: An Introduction*, Cambridge University Press, 2014.

Facebook

- **How does Facebook use your data?**
- **Where do you think Facebook can use your data?**

What about Amazon?

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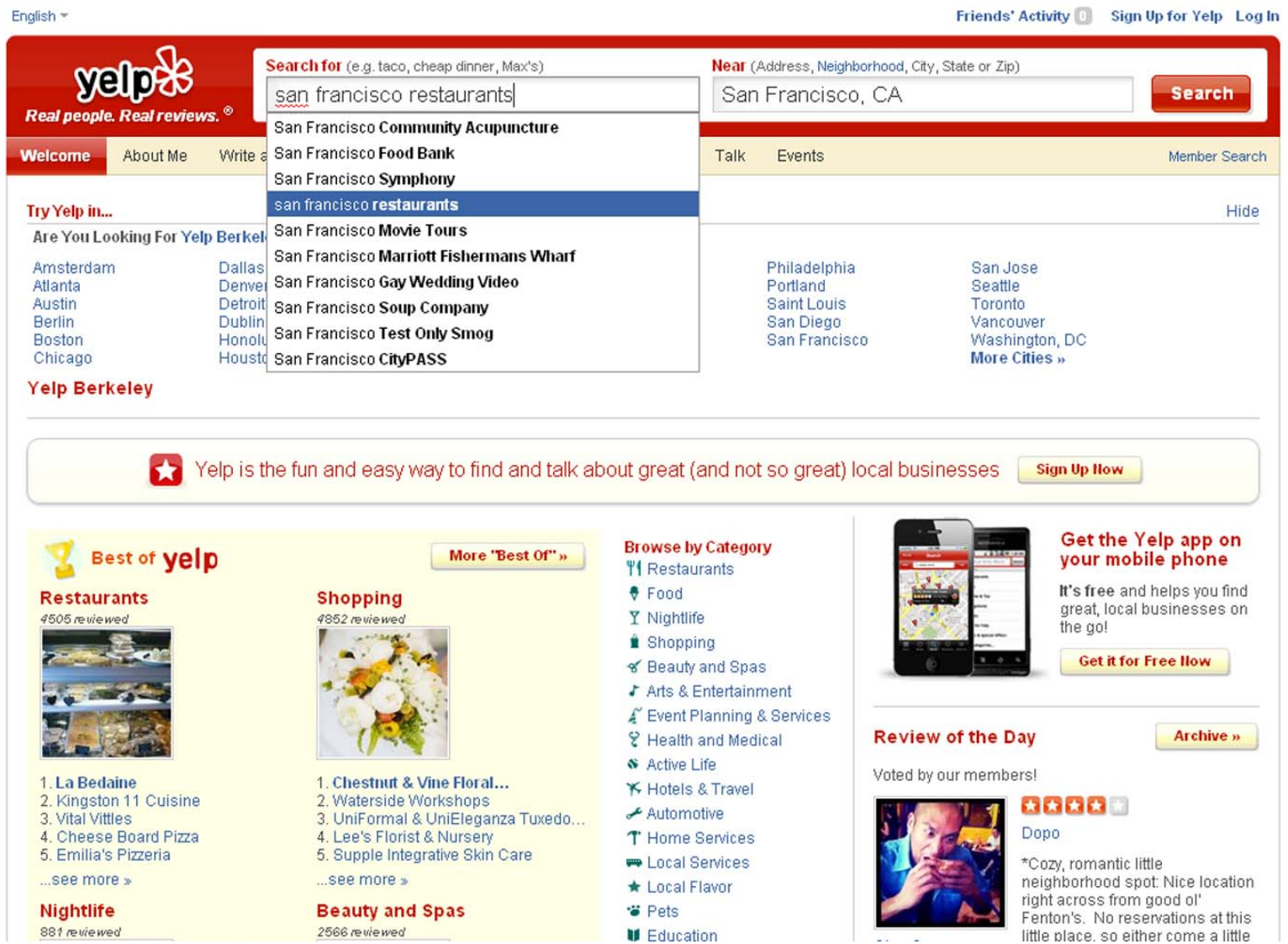
Yelp?



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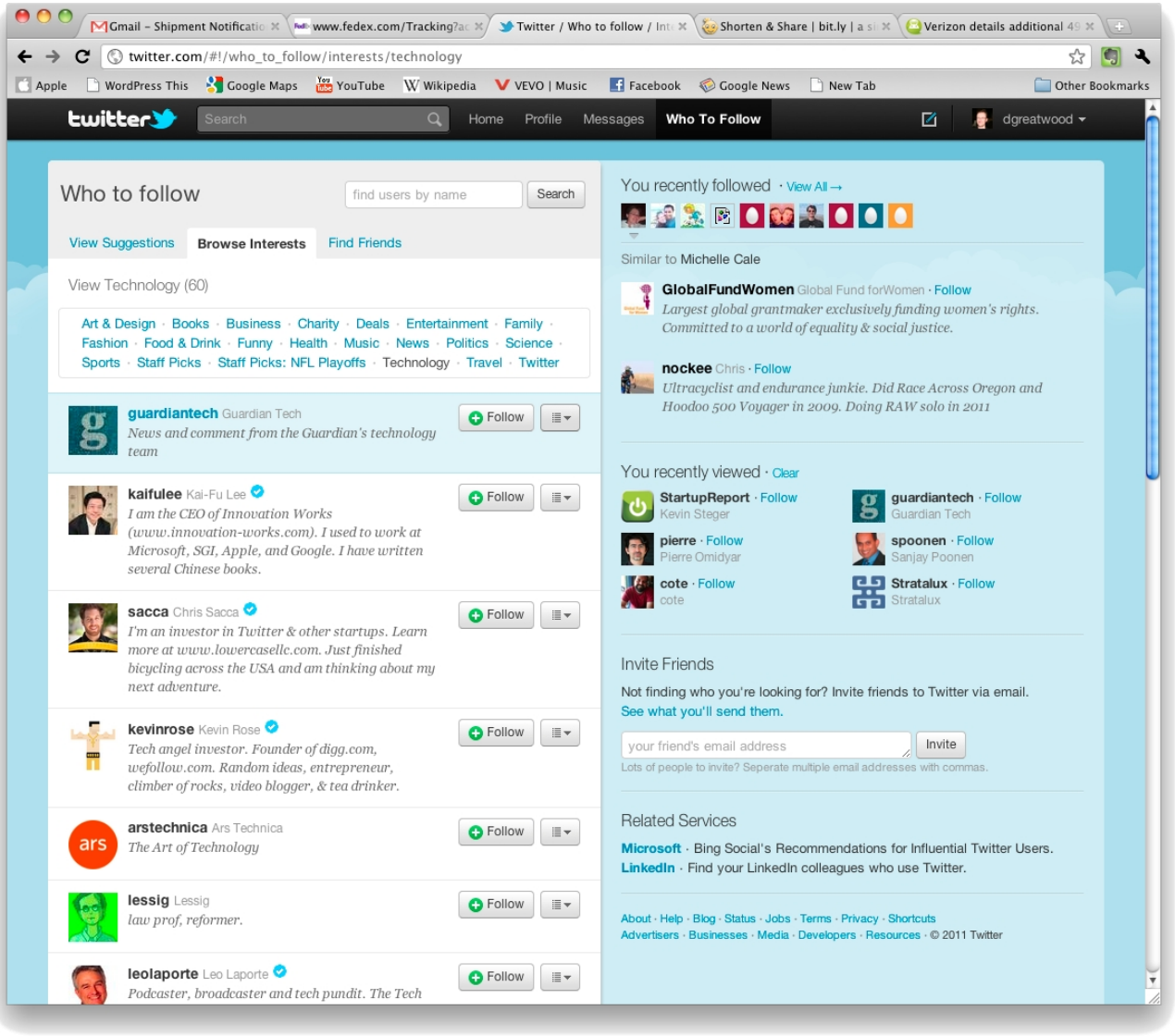
Or Twitter?



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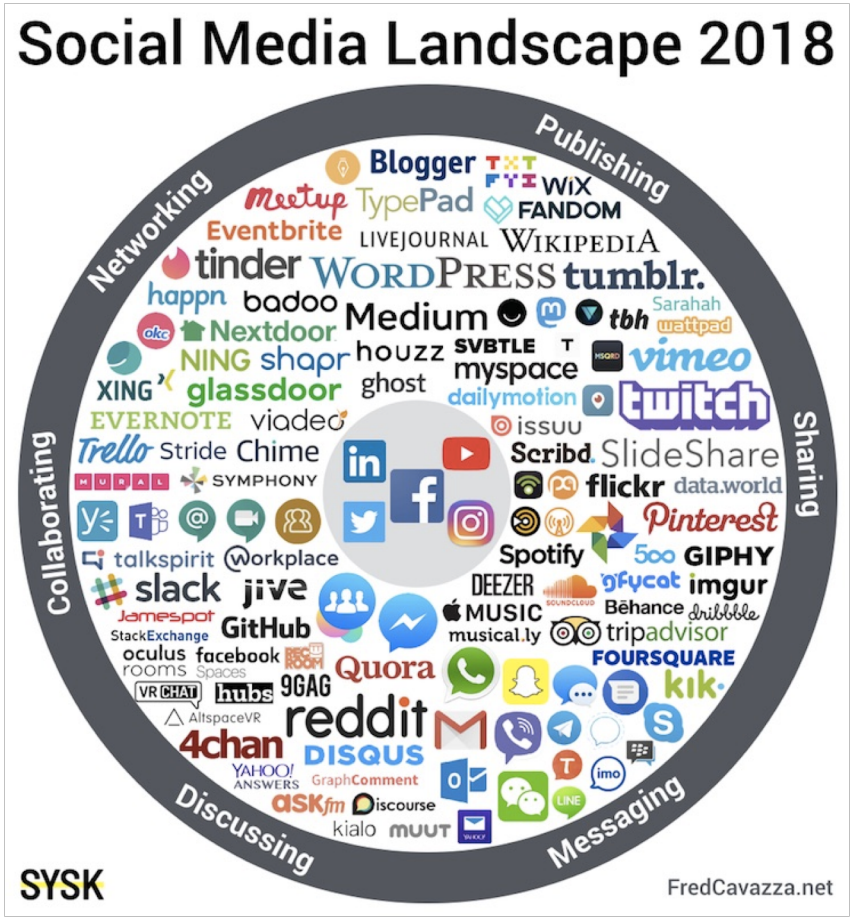
Definition

Social Media is the use of electronic and Internet tools for the purpose of sharing and discussing information and experiences with other human beings in more efficient ways.

Social Media Landscape 2017
Publishing
Sharing
Messaging
Discussing
Collaborating
Networking
Blogger
happn
TypePad
wikia
Meetup
Eventbrite
Medium
WIKIPEDIA
okcupid
WORDPRESS
tumblr.
tinder
badoo
WiX
myspace
dailymotion
TAGGED
meetme
NING
weebly
YouTube
Scribd
SlideShare
houzz
Nextdoor
XING
ghost
vimeo
viadeo
data.world
twitch
Google
Linked in
yammer
Instagram
flickr
Dropbox
Chime
facebook
500
imgur
Pinterest
EVERNOTE
twitter
Workplace
talkspirit
GIPHY
dribbble
Behance
HipChat
Chat
Spotify
DEEZER
slack
GitHub
reddit
StackExchange
Quora
askfm
DISQUS
kik
GraphComment
Discourse
MUUT
FredCavazza.net


Social Media Landscape 2018
Publishing
Sharing
Messaging
Discussing
Collaborating
Networking
Blogger
TXT FYI
WiX
FANDOM
Meetup
TypePad
Eventbrite
LIVEJOURNAL
WIKIPEDIA
tinder
WORDPRESS
tumblr.
happn
badoo
Medium
tbh
Sarahah
wattpad
Nextdoor
NING
shapr
houzz
SVBTLE
myspace
vimeo
XING
glassdoor
ghost
dailymotion
twitch
EVERNOTE
viadeo
issuu
Trello
Stride
Chime
Scribd
SlideShare
SYMPHONY
flickr
data.world
Pinterest
talkspirit
Workplace
Spotify
500
GIPHY
slack
jive
DEEZER
gfycat
imgur
Jamespot
GitHub
MUSIC
Behance
dribbble
StackExchange
musical.ly
tripadvisor
oculus
facebook
rooms
Spaces
FOURSQUARE
Quora
kik
VR CHAT
hubs
9GAG
AltspaceVR
reddit
4chan
DISQUS
YAHOO! ANSWERS
GraphComment
askfm
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kialo
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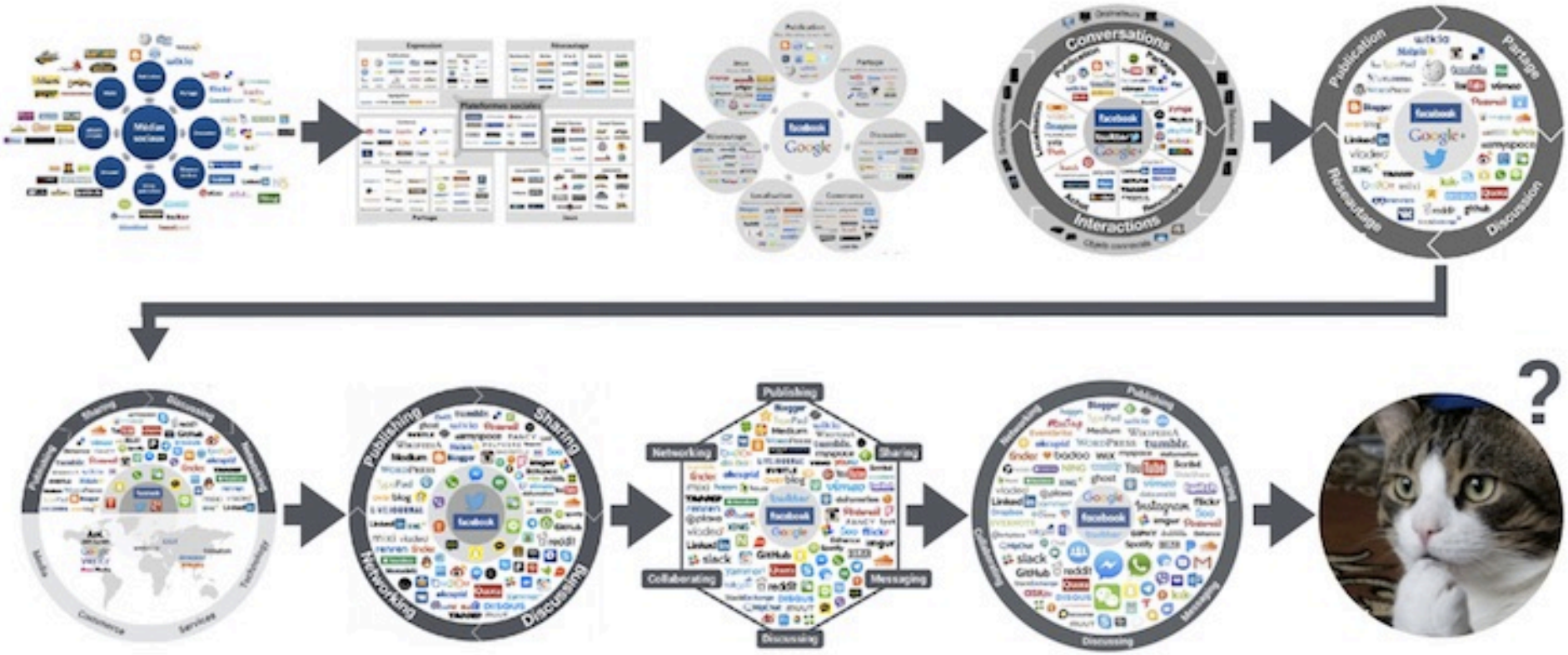
Conversations
Interactions
Publication
Partage
Réseautage
Discussion
Publishing
Sharing
Networking
Discussing
Collaborating
Messaging
?

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Social Media: Examples

- A wiki article
- Web reviews and ratings of a popular pizza place in your city
  - E.g., Yelp.com
- An online social network of your professional contacts
  - E.g., Facebook.com, LinkedIn.com
- An iPhone application that informs you where parking is likely available
  - FasPark

Types of Social Media

- Online Social Networking
- Publishing
  - Blogging
  - Wiki
- Micro blogging
- Social News
- Social Bookmarking
- Media Sharing
  - Video Sharing
  - Photo Sharing
  - Podcast Sharing
- Opinion, Review, and Ratings Websites
- Answers
- Entertainment

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Online Social Networking

Online Social Networks are web-based services that allow individuals and communities to connect with real world friends and acquaintances online

- Interactions
  - Friendship interaction
    - Friends, like, comments, …
  - Media Sharing
  - Sending and receiving messages

- Examples
  - Facebook.com
  - MySpace.com
  - Bebo.com
  - Orkut.com

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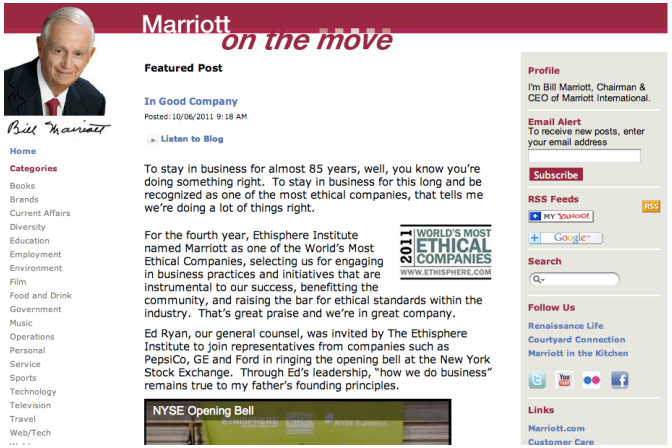
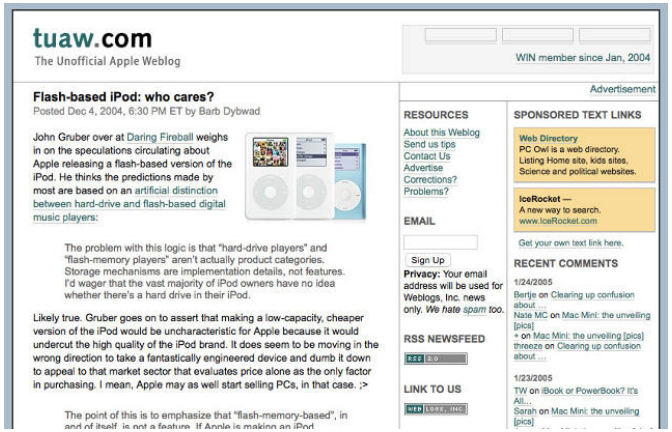
Blogging

A blog is a journal-like website for users, a.k.a. bloggers, to contribute textual and multimedia content, arranged in reverse chronological order



- Maintained both individually or by a community
  - See a tutorial at KDD http://videolectures.net/kdd08_liu_briat/
- Usages:
  - Sharing information and opinions with friends and strangers
  - Disseminating subject-specific content
  - Who is the influential http://videolectures.net/wsdm08_agarwal_iib/



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Microblogging

Microblogging can be considered as a counterpart to blogging, but with limited content

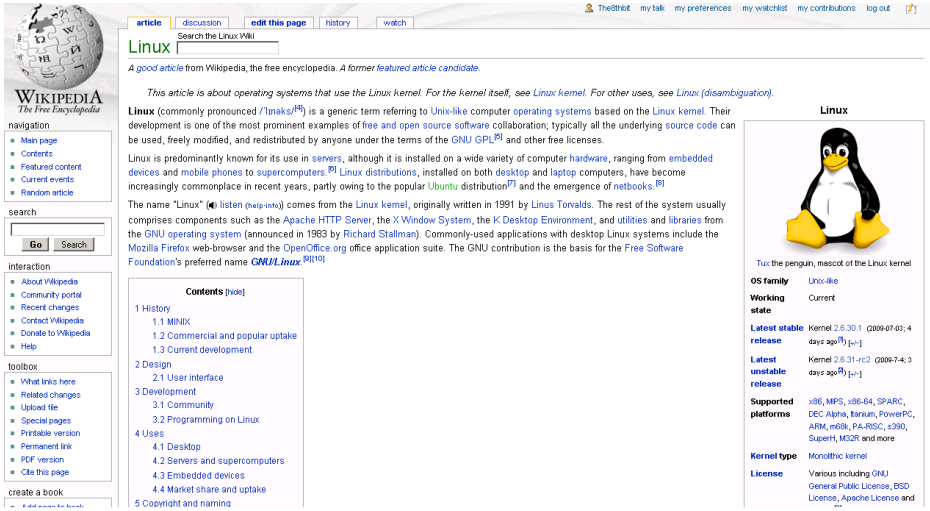
- Usage
  - communication medium
  - social interaction
  - citizen journalism
- Service Providers:
  - Twitter
  - Google buzz

Wiki

A wiki is a collaborative editing environment that allows users to develop Web pages using a simplified markup language

Wikipedia allows interested individuals to collaboratively develop articles on a variety of subjects.

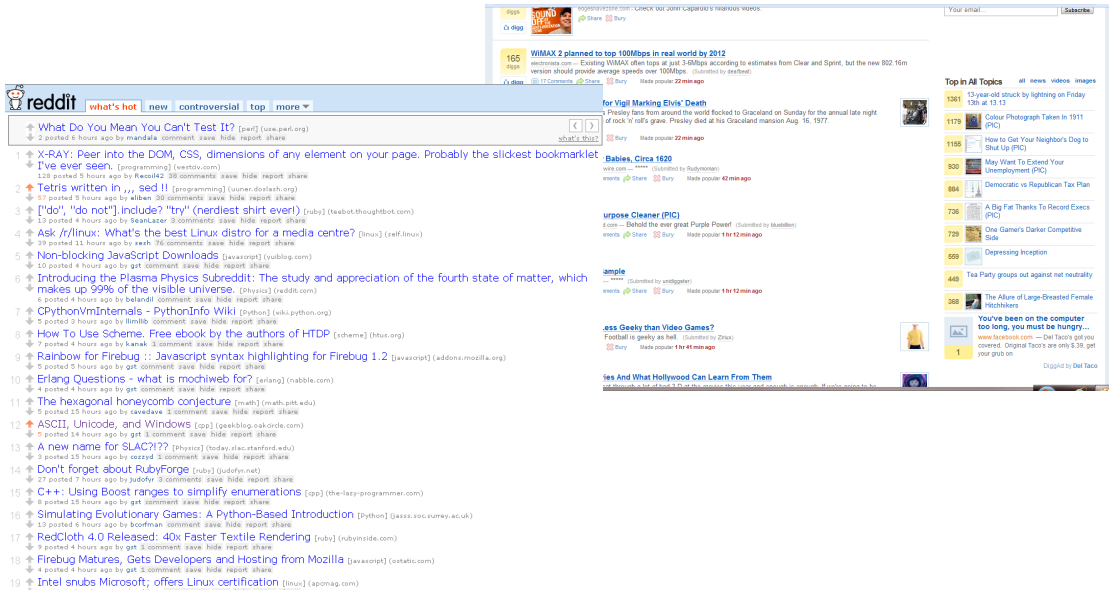
Using the wisdom of crowds effectively, it has become a comprehensive repository of information useful to a variety of individuals



Social News

Social News refers to the sharing and selection of news stories and articles by a community of users.

- Users can share articles that they believe would interest the community
- Samples:
  - Digg.com
  - Slashdot
  - Fark
  - Reddit



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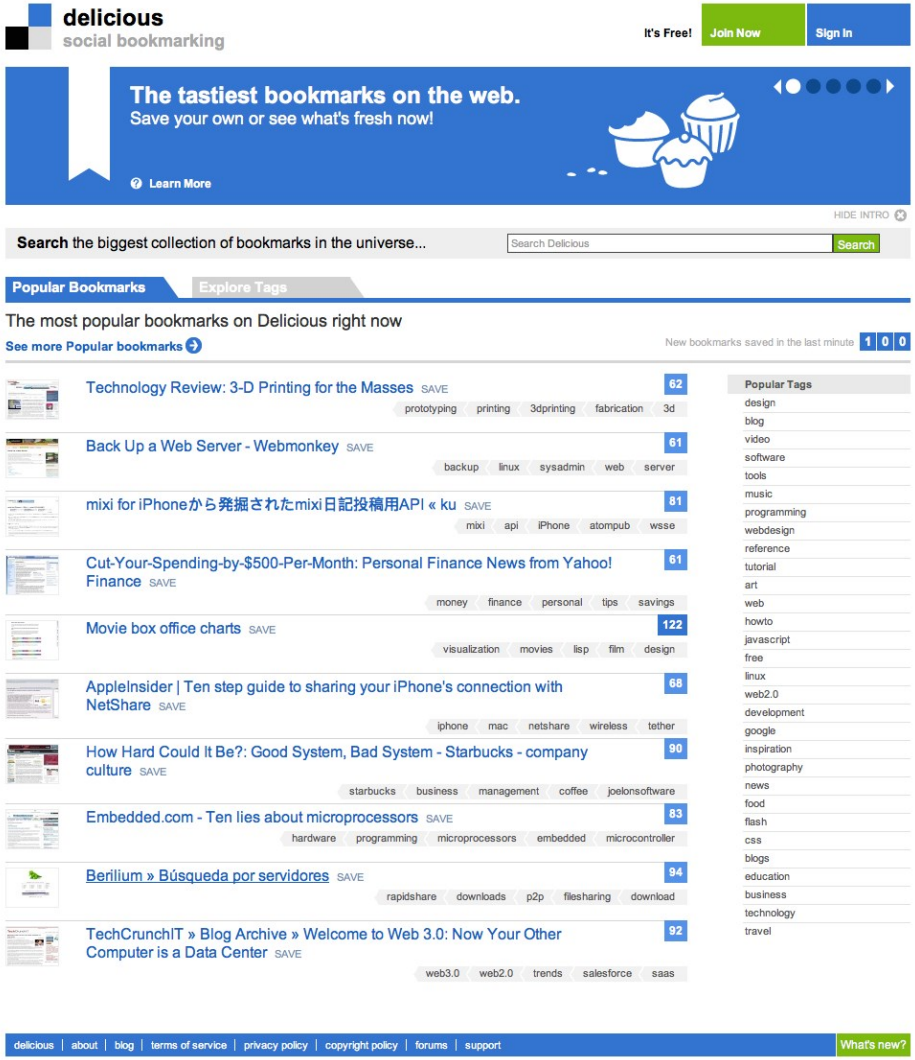
Social Bookmarking

Social Bookmarking sites allow users to bookmark web content for storage, organization and sharing.

- These bookmarks can be tagged with metadata to categorize and provide context to the shared content, allowing users to organize information making it easy to search and identify relevant information.
- Samples
  - Delicious.com
  - StumbleUpon.com



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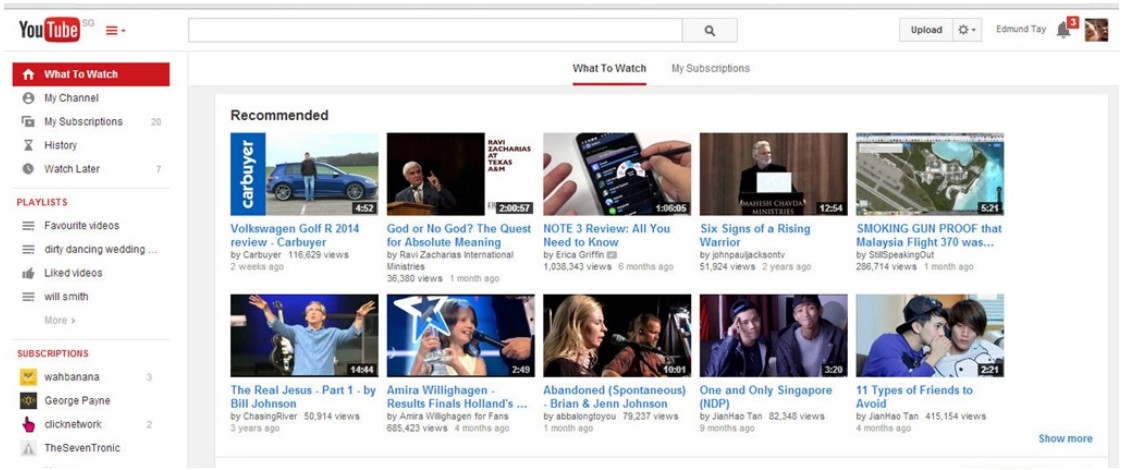
Media Sharing

Media sharing is an umbrella term that refers to the sharing of a variety of media on the web.

Users share such multimedia content of possible interest to others

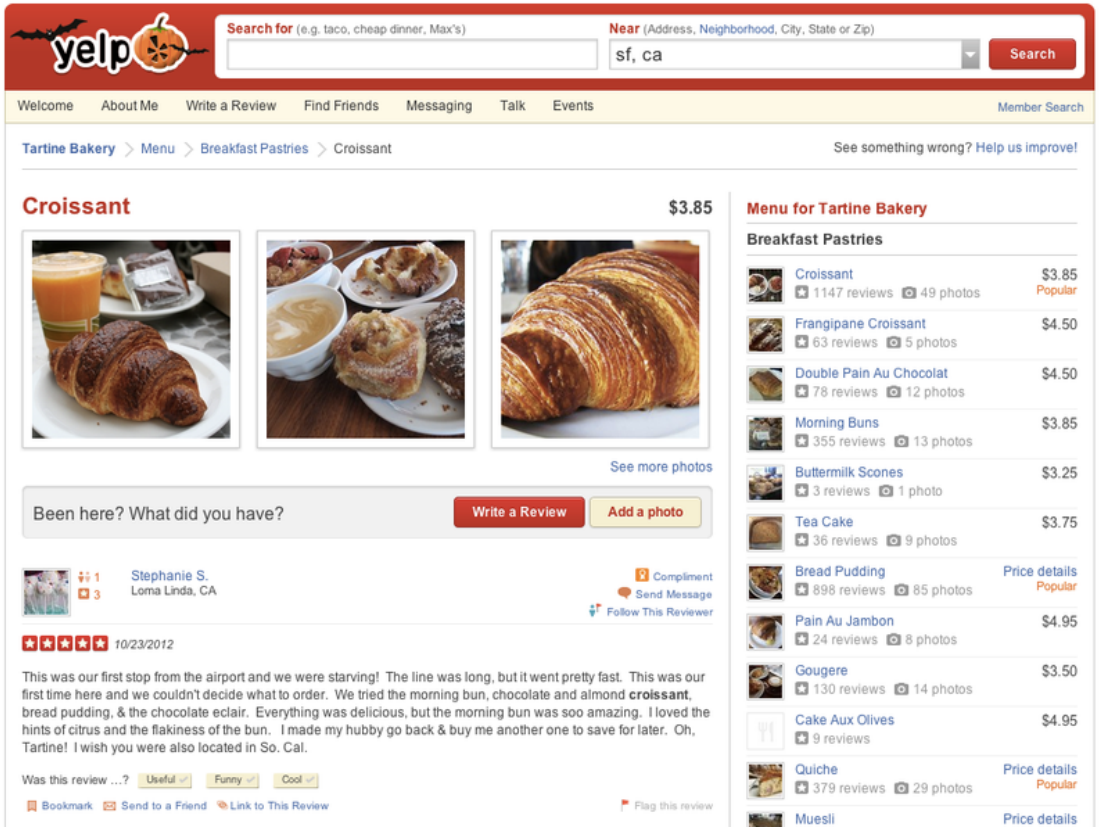
- Samples:
  - Video Sharing:
    - YouTube.com
  - Photo Sharing:
    - Flickr.com, picasa.com
  - Document Sharing:
    - Scribd.com, Slideshare.com
  - Livecasting:
    - Justin.tv, Ustream.com



Opinion, Review, and Ratings Websites

Opinion, review, and ratings websites are websites whose primary function is to collect and publish user-submitted content in the form of subjective commentary on existing products, services, entertainment, businesses, places, etc. Some commercial sites may serve a secondary purpose as review sites by publishing product reviews submitted by customers.

- Examples
  - Cnet.com
  - Epinions.com
  - yelp.com
  - tripadvisor.com

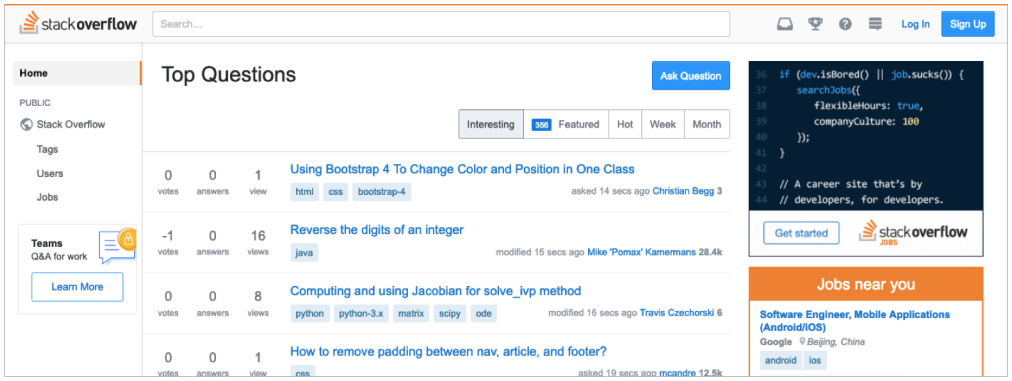


Socially-Provided Answers

In these sites, users who require certain guidance, advice or knowledge can ask questions. Other users from the community can answer these questions based on knowledge acquired from previous experiences, personal opinions or from relevant research.

- Unlike review and opinion sites, which contain self-motivated contribution of opinions, answer sites contain knowledge shared in response to a specific query.

- Samples:
  - WikiAnswers, Yahoo Answers, Quora, Stackoverflow, ……



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Main Characteristics

- Participation
  - social media encourages contributions and feedback from everyone who is interested. It blurs the line between media and audience.
- Openness
  - most social media services are open to feedback and participation. They encourage voting, comments and the sharing of information. There are rarely any barriers to accessing and making use of content – password-protected content is frowned on.
- Conversation
  - whereas traditional media is about “broadcast” (content transmitted or distributed to an audience) social media is better seen as a two-way conversation.
- Community
  - social media allows communities to form quickly and communicate effectively. Communities share common interests, such as a love of photography, a political issue or a favorite TV show.
- Connectedness
  - Most kinds of social media thrive on their connectedness, making use of links to other sites, resources and people.

Social Media Mining *is the process of representing, analyzing, and extracting meaningful patterns from social media data*

Social Media Mining Challenges

Sparse, Noisy, Scale

1. **Big Data Paradox**
    1. Social media data is big, yet not evenly distributed.
    2. Often little data is available for an individual
2. **Obtaining Sufficient Samples**
    1. Are our samples reliable representatives of the full data?
3. **Noise Removal Fallacy**
    1. Too much removal makes data more sparse
    2. Noise definition is relative and complicated and is task-dependent
4. **Evaluation Dilemma**
    1. When there is no ground truth, how can you evaluate?

结束语

- 社交媒体网络是复杂系统
- 如何分析社交网络的现象