Modeling User Interest from Online Interactions and Some Applications

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September 21, 2015

Why Modeling Interests?

- Displaying the right advertisements $$$

- In life, we often ask these questions to our children, students, and employees …
  - What are you really interested in?
  - What have you done lately?
  - What do you want to do next?

- These questions attempt to answer "who we are". "why we are here", "what are we going to do" …

Let's Get back to Bread and Butter

- How to profile users without bothering the users?
- We need data sources:
  - Queries issued, answers provided, pages viewed, messages posted, places visited
  - When, where, how long, and contexts
- Abstraction:
  - A time series of events, actions and contexts

Applications: Search Engines

- Search is clearly an information seeking activity

- Data sources: queries, time and results clicked

- Queries and clickthroughs => interests
  - Queries are short: clicktrhoughs provides more detailed and precise information about user interest
  - Queries are ambiguous (having different meanings): clickthroughs can delineate the aspects that the user is interested in

- Techniques:
  - From concept mining, know what the pages are talking about
  - From pages the user clicked and not clicked, infer likes and dislikes
  - From inferring pages the user likes and dislikes, we infer concepts that the user likes and dislikes (w.r.t. current query)

From Concepts to Locations

- How abstract concepts are related to concrete concepts, people and locations

- Deeper mining to distinguish a "concept" (anything that is important) to concrete concepts (that you can point at)

From Search to Social Network

- Compared to search, social networks are much more about communication than information seeking

- Search is more task specific (e.g., job related), but social networks are more comprehensive because it encompasses more aspects of life

- Search is more individual, but social networks have much more social influence

Deeper Understanding of Interest

- Interests come in many types:
  - Short-term (temporary) interest
  - Long-term (persistent, substainted) interests
  - Periodic interests (with different cycles)
  - … …

- How to characterize interests and hence discovered them?
- How to predict future interests based on the interest types

Summary and Some Thoughts

- How to define an interest?

- How is an interest developed

- How does a person's interest affect his/her behaviors?

- How does a person's experience affect his/her behaviors (when they have more or less similar interests)

… … …

- How to make use of this knowledge to build better applications?

  - In addition to serving information (and ads), how does user modeling help learning and explain behaviors and maximize results?