UFMG UNIVERSIDADE FEDERAL DE MINAS GERAIS

Recommender Systems

Characterization

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A taxonomy of recommender systems

> *[…] the **inputs required** from the consumers, the additional **knowledge required** from the database, the **ways the recommendations are presented** to consumers, the **technologies used** to create the recommendations, and the **level of personalization** […]*
>
> ◦ Schafer et al., DMKD 2001

- Domain ..... *what is being recommended?*
- Purpose ..... *why is it being recommended?*
- Context ..... *does it depend on the user's context?*
- Feedback ..... *whose opinion is being leveraged?*
- Personalization ..... *how personal is the recommendation?*
- Privacy ..... *how sensitive is the exploited data?*
- Interface ..... *how is the recommendation presented?*
- Algorithm ..... *how is the recommendation computed?*

Domain: *What is being recommended?*

- Movies, music, news, books, research articles, web pages, search queries, social tags, experts, dates, jokes, restaurants, financial services?
- Aggregation
  - Singles vs. bundles vs. sequences?
- Recurrence
  - New vs. previously recommended?

Purpose: *Why is it being recommended?*

- Improve sales?
- Offer information?
- Entertain the user?
- Educate the user?
- Build a community?
- *What is success?*

Context: *Does it depend on context?*

- What is the user doing?
- Who is the user with?
- Where is the user?
- Which device is being used?
- *How is the recommendation affected?*
  - Recommended content (e.g., suitable for groups?)
  - Level of interruption (e.g., consume automatically?)

Feedback: ***Whose opinion is leveraged?***

- Everybody?
- People like you?
- Experts?
- *Yourself?*

Personalization: ***How personal is it?***

- Non-personal (i.e., same for everybody)
- Group-based (e.g., using demographics)
- Persistent (i.e., matches long-term interests)
- Ephemeral (i.e., matches current activity)
  - *Which activity is worth considering?*

Privacy: ***How sensitive is the exploited data?***

- Is personal information revealed?
  - Are privacy permissions adjustable?
  - Is the user profile editable?
- Is the recommendation honest?
  - How transparent is it?

Interface: ***How is it presented?***

- Predictions vs. recommendations vs. filtering?
- Is the recommendation organic?
- Is the recommendation explained?
- How is feedback acquired?
  - Explicitly (e.g., rates)
  - Implicitly (e.g., clicks)

Algorithm: ***How is it computed?***

- Using community data?
- Using item features?
- Using knowledge models?
- Using multiple approaches?
- *We may have an educated guess*

A tour of Amazon.com

> *Have you ever wondered what you look like to Amazon? Here is the cold, hard truth: You are* ***a very long row of numbers*** *in a very, very large table. This row describes everything you've looked at, everything you've clicked on, and everything you've purchased […]*
>
> - Konstan & Riedl, IEEE Spectrum 2012

Writing assignment #1

Using the introduced taxonomy, characterize **at least two** distinct recommenders from a website of your choice. You can include screenshots to illustrate your characterization. When choosing a website, **be curious:** look for unusual, **exotic recommendation scenarios**!

- **Due Mon, Mar 27 @ 23:55 via Moodle**