ECML PKDD Discovery Challenge 2009

Tag Recommendations in BibSonomy

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Sponsored by: Tagora, Nokia
Lessons learnt

• Task 1 = mostly unknown data
  ■ Keep it simple
  ■ Gather tags from various sources (title, content, external services, different spellings)
  ■ Re-order tags for personalization
  ■ Clever selection and combination strategies win

• Task 2 = user, resource, tags known
  ■ Sophisticated methods are useable and useful
  ■ Factor models, classification, graph-based, CF, etc.
  ■ Simple methods work, too

Since Task 1 is the >90% case, use simple methods (they're quick, too!)
Online Tag Recommendations for Social Bookmarking Systems

- Provide tag recommendations for the user in a live setting
- Respect time constraints (!)

⇒ Try it out yourself: http://www.bibsonomy.org
ECML PKDD Discovery Challenge 2009

• Participants:
  ■ 13 Different Recommender Systems
  ■ 10 Participants
  ■ 7 Countries

• BibSonomy:
  ■ 1500 active users
  ■ >28,000 posting processes, >2000 per recommender system
  ■ For evaluation only public non-spam posts are considered
    ➔ ~410 relevant posting processes per recommender system

Website: http://www.kde.cs.uni-kassel.de/ws/dc09/
Tag Recommendation Framework

- Each *post request* is sent to every recommender system
- One of which is *randomly selected* (without replacement)
- Only responses within a *1000 ms timeout* are considered
- Recommended tags are presented to the user
Some Results

- **Precision**: „How many recommended tags were adequate?“
- **Recall**: „How many of the true tags were recommended?“
Some Results

- **Precision**: „How many recommended tags where adequate?“
- **Recall**: „How many of the true tags where recommended?“

![Graphs showing precision vs recall with and without timeout constraints.](image)

*With timeout constraints*

*Without timeout constraints*
Some Results

- **Precision**: "How many recommended tags were adequate?"
- **Recall**: "How many of the true tags were recommended?"

**P/R with timeout constraints**

**Latency**, ordered ascending
And the Winner is...

(Will be announced this evening)

<table>
<thead>
<tr>
<th>Precision</th>
<th>Recall</th>
<th>F1-Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.178</td>
<td>0.242</td>
<td>0.205</td>
</tr>
<tr>
<td>0.151</td>
<td>0.195</td>
<td>0.171</td>
</tr>
<tr>
<td>0.143</td>
<td>0.165</td>
<td>0.154</td>
</tr>
</tbody>
</table>

CONGRATULATIONS !!!