User-Generated Content for Annotations in Watson

MSc. Thesis Design
Harriëtte Smook

VU
VRIJE UNIVERSITEIT AMSTELDAM
Watson in Healthcare

Clinical Decision Support System

Information provided by:

Experts (game)  The Crowd (micro-tasks)
Watson only learns from specialized medical text

The quality of crowdsourced annotations is difficult to maintain [Fort & Adda 2011, p. 3-5]

The approach of crowdsourcing platforms raises ethical questions [Fort & Adda 2011, p. 5]
User-Generated Health Content as a Resource for Annotations
Health Data Tools

- **Mood Map**
  - Create Your Mood Map
    - Answer simple questions every week about your External Stress, Life Activities, Function, Distress and Symptoms to create your Mood Map. Learn more.

- **Quality of Life**
  - How's Your Quality of Life?
    - Your Quality of Life (QOL) score is an easy way to see the impact your condition has on your overall health and well-being. Answer a few quick questions to see how your condition and treatments affect your physical, social and mental well-being.

- **Hospitalizations**
  - Add Your Hospitalization History
    - Share your story with others by entering your hospitalization history. Answer a few questions about your history and you’ll see a timeline that shows your journey.

- **Labs & Tests**
  - Chart Your Labs and Tests
    - Want to keep an eye on your labs? When you get your results back, you can enter them here to see a chart of how they change over time.

- **Treatments**
  - Start Monitoring Your Treatments
    - What are you doing to treat your condition? Add your treatments to your profile so you can manage them all, including dosages, in one place. Want others to understand how you’re treating your condition? Add your treatments now.

- **Symptoms**
  - Severity of symptoms
    - None
    - Mild
    - Moderate
  - Update
Report Conditions & Complete Surveys

<table>
<thead>
<tr>
<th>Condition</th>
<th>Score</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention–Deficit/Hyperactivity Disorder</td>
<td>49</td>
<td>15</td>
</tr>
</tbody>
</table>

Do you have any of these conditions?
Check Y for the conditions you have, then take the surveys to get your score and see how you compare.

- Obesity [Y] [N]
- Chronic Fatigue Syndrome [Y] [N]
- Cold Intolerance [Y] [N]

Attention-Deficit/Hyperactivity Disorder (934 members)

Symptoms | Treatments | Side effects | Causes
---|------------|--------------|-------

What symptoms are you currently having?
Your previous answers are saved. Take the survey again to see how your score may have changed. For each symptom listed below, check Y or N to indicate whether you are currently experiencing it (and rate its severity if you check Y).

<table>
<thead>
<tr>
<th>Cognitive (11)</th>
<th>Have it?</th>
<th>How severe?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty concentrating</td>
<td>[Y] [N]</td>
<td>[*****]</td>
</tr>
<tr>
<td>Difficulty finishing tasks</td>
<td>[Y] [N]</td>
<td>[*****]</td>
</tr>
<tr>
<td>Easily distracted</td>
<td>[Y] [N]</td>
<td>[*****]</td>
</tr>
</tbody>
</table>

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Advantages for Watson

- Watson could gain:
  - Knowledge from the patients' perspective
  - Access to High coverage of (rare) medical conditions
  - Access to patients as an intermediate between the general crowd and the medical experts
  - Access to medical experts
Research Question
Can users and content from social health websites be utilized for collecting ground truth annotations data for cognitive systems such as Watson?

Approach
1. Identify appropriate platforms
   Investigate and cluster the characteristics into one framework
2. Design experimental tasks based on the framework
3. Identify metrics for investigating the effectiveness of the platforms and their data