Abstract

- Develop and apply Semantic Web, data mining, and Machine Learning techniques to address the research challenges in social health data analytics.
- Semantic Integration of Health Data
- Social Analytics for Healthcare
- Monitoring Spread of Epidemics

Introduction

Healthcare is changing from the traditional authoritative provider-centric model to collaborative and patient-oriented care.

Current Research

1. Social Infobuttons: Integrating Health Data with Semantic Web [1]

![Diagram showing a Conceptual Model and a Term matching Algorithm]

Two-Step Sentiment Classification

Definition of Degree of Concern (DOC)

\[ DOC[d,t] = \frac{N^2}{PN} \]

Results of Sentiment Classification

Table 1. Results of the clue-based classifier

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Precision, Recall, F-Meas.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>s1s0</td>
<td>80.3%, 60.6%, 0.69</td>
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</tr>
<tr>
<td>s1w1</td>
<td>44.9%, 68.3%, 0.54</td>
<td>45.2%, 69.2%, 0.55</td>
</tr>
<tr>
<td>s1l1</td>
<td>76.8%, 41.9%, 0.35</td>
<td>77.2%, 41.9%, 0.34</td>
</tr>
<tr>
<td>s2w2</td>
<td>91.7%, 7%, 0.13</td>
<td>93.3%, 8.9%, 0.16</td>
</tr>
</tbody>
</table>

3. Epicemic Outbreak And Spread Detection System (EOSDS) Based On Twitter Data [3]

Proposed PhD Work

- Health professional social networks and patient-expert interaction websites will be integrated using the RDF and linked data concepts to enhance the knowledge repository.
- Topic-modeling techniques such as Latent Dirichlet Allocation will be incorporated to enhance the sentiment analysis.
- The communication patterns of health information will be investigated. Many tweets are forwarded by other users.

Acknowledgment

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Publications