Introduction
- Work life plays a major role in every individuals life
- Humans-in-the loop framework works smartly in determining whether a person is happy at work or not by classifying job-related tweets
- Multiple classifiers in the loop process the twitter data along with human annotators thereby increasing the overall accuracy of the framework

Problem Statement
Improve accuracy of existing humans-in-the loop classification framework by training a new classifier in the loop.

Humans-in-the-loop Classification

<table>
<thead>
<tr>
<th>Annotations</th>
<th>Sample Tweet</th>
</tr>
</thead>
<tbody>
<tr>
<td>YYYYYY</td>
<td>Payday Thursday</td>
</tr>
<tr>
<td>YYYYN</td>
<td>haha.yes I've considered this career path</td>
</tr>
<tr>
<td>YYNNN</td>
<td>Just business professional, definitely not a career fair</td>
</tr>
<tr>
<td>YNNNN</td>
<td>Current situation at wrk bore</td>
</tr>
<tr>
<td>NNNNN</td>
<td>Step 2 insurance company</td>
</tr>
</tbody>
</table>

Table 1: Sample tweets each annotated by 5 crowdworkers. Tweets with unanimous agreement were used to train the new classifier C4. Annotations in bold received unanimous agreement.

Implementation
- Gathered results obtained from classifier C3
- Compared labels obtained from human annotators and machine predicted labels
- Categorized tweets into four classes true positives, false positives, true negatives, and false negatives
- Determined tweets which were incorrectly classified by C3 by calculating frequency of words in true positives and false negatives
- These tweets were then sent to human annotators for labeling
- Calculated the inter-annotator agreement. Results are shown in table 2
- Combined the new training data with the previous training data and trained a new classifier C4
- A data set of 1600 tweets was used to test the newly trained classifier

Results

References