

Recommendation for Evaluating Candidates competency for a specific job – A perspective to Competency Mapping

Ashwin Perti

Department of IT, ABES Engineering College, Ghaziabad

Abstract— As different Companies are hiring the professionals from the Campus as well as off-the campus. We would be more focussed on IT specialized companies. Ultimately the need arises out of the companies that they want to hire the professionals from the candidates (students) who are competent for the Job. In this paper I had tried to match the parameters as per the need of the companies with the behaviour (or in other words Sentiments) of the candidates profile from the social media like twitter, Facebook, Myspace, LinkedIn and many more micro-blogging websites. So if the competencies of the students can be known then it would be easier for the companies to hire the professional that suits the job profile. Natural Language Processing helps a lot in identifying the Competency Mapping of the candidate on the basis of his / her behaviour or activities that are performed on the Online Social Sites, which can help a lot for the candidates to be hired for a particular company as well as for the IT Companies also to recruit the candidate on the basis of their demands. We had tried to improve the recruitment process.

Keywords— Competency, Sentiments Analysis, NLP.

1. INTRODUCTION

As the demand of IT professionals in the Information Technology (IT) industry in India is rapidly increasing. The Indian IT industry has nearly 50% compounded annual growth rate over the recent years and the more years to come. As the most of the Companies specifically the IT companies are hiring professionals (candidates) for the job from the On-Campus as well as off-the-campus. So it is very beneficial for the candidates (Students) to compete for the job. Nowadays, with the use of Social Media sites as Facebook, twitter, Myspace, WhatsApp and more such types of social websites had penetrated into the society and most of the candidates are using the Social Media for their regular day to day activities. That can range from making friends, chatting with the friends or with someone else, discussing on some academic issues, discussion on some advanced topics like – android, cloud computing, java, .Net or some other competition going on like IBM TGMC or Infosys Campus Connect program and many more such types of issues. There can be any of such issues due to which the social sites are becoming very much popular among all peoples of the society.

So there lies the requirement of Competency mapping. Competency is a skill, a personal characteristic or a motive demonstrated by various behaviours which contribute to outstanding performance.

In this work I am going to use Competency mapping by which we are going to propose whether the candidate is suitable for the job for the company or not. The Competency mapping would rather require Behavioural Analysis of the candidate. Which tries to find out the suitable candidate for the job as required by companies' requirement. So the Competency mapping would be done, based on the company's requirement and the parameters as decided on the basis of the behaviour of the candidate which are going to be extracted from the online social sites like google-plus, Facebook, twitter, etc. So that the candidate who is using Facebook, LinkedIn, twitter, etc. and with the use of behaviour (trait) Analysis, the factors like Initiative, working in a Collaborative Environment, Self-knowledge, Creativity and many more factors as described in can be easily achievable and we may be able to identify that the candidate needs some additional training in the particular technology or in which technology he / she may be able to work comfortably. The knowledge I am going to extract from the online social sites (OSS)

2. REVIEW OF RELATED WORK

- As in [1] the global competency is talked about, where the standards for the students behavior is being given. It has only talked about the qualities from the perspective of global competency, but in this paper we are more focussed as per the need for the companies or their requirement.
- In [2] the Sentiment Analysis is being done by the author using supervised and unsupervised learning method. The approach we have followed in this paper is also supervised approach where we know the output (i.e. the requirement of the companies) and input is the Sentiment Analysis of the candidate which we are supposed to take from the social sites (like Facebook / twitter).

Input

Facebook data

Output

Sentiment Analysis

- In [3] various definitions of the competency mapping is given, but the competency mapping is particular for the HR professionals as well the competency mapping is done for additional training on the technology or performance in the job, but in this paper we are going to use the competency mapping by the behaviour of the candidate who are active on the social networking sites like Facebook, twitter, etc.

3. COMPETENCY MAPPING

For Competency mapping sentiment analysis is done. Sentiment Analysis is the process where detection of the information is done by the extraction from unstructured text. Generally the text which is taken from the social sites like Facebook and twitter is in unstructured form which is composed of text, audio, images, video and many more formats which makes it unstructured. But in this paper I am more focussed on unstructured text form. The sentiments are mainly based on the behavior of the candidate for which we are checking its competency.

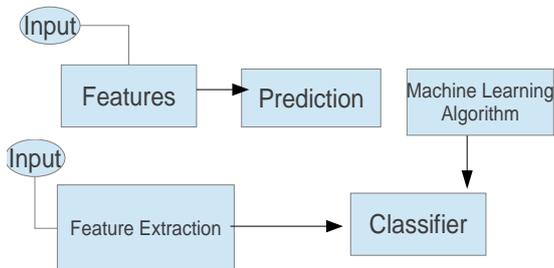
Sentiment Analysis procedure is as follows:

1. Candidates Features Extracted
2. Tokenization of the features Extracted
3. Feature Selection based on the requirement of the companies
4. Matching the features with the criteria as decided by the different companies
5. Sentiment Polarity based on the criteria as decided by the company requirement
6. Classification of the Sentiments

4. THE PROPOSED METHODOLOGY

In this paper we had to first go for Natural Language Processing tasks like – tokenization, stop words removal, stemming to filter the ambiguous text. For the said purpose we can also use nltk package in python or tm package provided in R software.

The methodology that we have followed in this paper is discussed below:



4.1 Training:

In this we provide the input as a text in form of tokens. During the training period the parameters are collected as per the requirement of the companies like working in a collaborative environment, team work, communication skill and other types of parameters as required by the different needs of the companies.

4.2 Prediction:

After the text collection, I will go for prediction for the sentiments that we had collected. In this phase the data collected from the social media like twitter, Facebook, LinkedIn and other social sites are used as input and features are extracted from them. The matching process is done at this level where the parameters are matched and the competency so desired is taken out.

In more detailed form is explained below:

1. Create an app on Facebook / twitter / or any other social site
2. The app has to be installed by all the candidates to be part of the above said criteria
3. Mining the data from the Social Site
4. Matching the quality with the parameter decided below
5. On the basis of the matching the parameters with the company and the candidates individual
6. The Recommendation process starts here after this step
7. Finally the quality of the candidate can be judged by this procedure

4.3 Behaviour Classification techniques:

As Sentiment classification techniques are divided into machine learning approach [5]. The parameters that has to be mapped with the posts, likes or tweets are summarized into the table. These parameters matched with the criteria of the Companies for the various competencies.

S.No.	Parameters
1	Communication skill
2	Team work
3	Self-Confidence
4	Passion for Technology
5	Creativity
6	Flexibility
7	Open-mindedness

The Sentiments (factors) are decided based on the probability that the feature extracted is as per the requirement.

We can use statistical approach for feature (parameter) selection. The mutual information can be used to select the features based on their classes.

The Pointwise mutual information $I(x_i ; y_j)$ between x_i (words) and y_j (class) is defined as:

$$I(x_i ; y_j) = \log(p(x_i / y_j) / p(x_i)) \quad (1)$$

Where x_i is the word and y_j is the class in which the word exists.

Generally in PMI there are exists two conditions:

1 - if $I(x_i ; y_j) > 0$

Then the word is positively correlated with the class.

2 - if $I(x_i ; y_j) < 0$

Then the word is negatively correlated with the class.

So, with the use of Pointwise Mutual Information we can find out the correlation between the words and the class. Which may help in finding out the suitable measure for checking the competency of the candidate.

5. CONCLUSION

Finally, I would like to conclude with that we can extract the features from the various inputs that are coming from various social websites like Facebook, twitter, LinkedIn and many more other websites. The same procedure can also be applied for the Sentiment analysis also. The Recommendation system used in the above said paper are the views of the author itself.

REFERENCES

1. Global Competency, from the website <http://cdc.binghamton.edu>
2. Rupali P. Jondhale and Manisha P. Mali, (Feb. 2015), "Study on Distinct Approaches for Sentiment Analysis", in IJCA, Volume 14, Pg. 21-24.
3. Eman M.G. Younis, "Sentiment Analysis and Text Mining for Social Media Microblogs using Open Source Tools: An Empirical Study", in IJCA, Volume 112-No.5, February 2015, Pg. 44-48.
4. V.S. Chauhan & Dr. Sandeep Srivastava, "Competency Mapping for HR professionals in IT inudstry", published in the International Journal of Management, ISSN 2277-5846, Vol-2, Issue-3, July, 2013.
5. Walaa Medhat, Ahmed Hassan , Hoda Korashy. Sentiment analysis algorithms and applications: A survey. Published on 27 May, 2014, hosting by Elsevier B.V. on behalf of Ain Shams University.