NEURO-FUZZY AGENT FOR RESUME RANKING IN HR SYSTEMS

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by

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CERTIFICATE

This is to certify that the project Synopsis entitled ***"Neuro-Fuzzy Agent For Resume Ranking in HR Systems"*** is a bonafide work of ***Advait Sathe (15102028) Raj Surve (16202013) Shreya Salgia (15102054) Surya Swaminath (14102031)*** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of ***Bachelor of Engineering*** in **Computer Engineering.**

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Abstract

In olden days,manual scanning of resumes used to take place.The HR Department was under tremendous pressure as to manually scan each and every resume of a candidate and then rank him according to the skillsets required for that particular job role.Traditionally,many new methods were discovered to reduce the time and efforts of the recruitment process.Nowadays,ATS and many other resume parsing softwares are being implemented in the industry.Even A.I system is being developed to scan CVs.Our system tackles with a similar issue.We use a Neuro-Fuzzy Agent to scan the CVs uploaded by the HR and rank them based on the skillsets specified by the experts for that particular job vacancy.It is a hybrid system that will be using both ANN and Fuzzy concepts to help overcome weakness of each and make the system effective and useful for the Human Resource Department.

Introduction

Human Resource Systems are appointed for selecting workforce of an organization or business sector.They have to play number of roles in order to select candidate for particular designation. The first role of the HR Department is to shortlist the resume of various candidates who had applied for particular job position created by experts. Selection and ranking of each applicant for particular job roles within Human Resource (HR) systems involve high levels of uncertainty. This is due to the distinct opinions and preferences of the different occupation domain experts in the decision making process. Our system will help to remove such uncertainty by ranking the candidates based on their resumes and job requirement skillsets given by the experts. Our system uses neuro-fuzzy ranking algorithm to rank candidates.Our system will use artificial neural network[4] concepts to scan resumes of different candidates uploaded by the HR. Fuzzy sets[2] for ranking those resumes. The resume, which meets the criteria given by experts, will give first ranking and so on. After the ranking a list will be generated which will display the names of candidates according to their rank.

Objectives

Our Proposed system will select the submitted CVs based on the important requirement criteria that are required for particular job profile. System will rank the CVs based on the experience and other key skills that are required for particular job profile. This system will help the HR department to easily shortlist the candidate based on the CV ranking policy. This system can be used in many organizations that require expert workforce. This system will help to reduce workload of the Human resource department. This system requires server which will manage data related to system. This will provide economic benefits to the organization. It includes quantification and identification of all the benefits expected.

Literature Review

1. A Neuro-Fuzzy Based Agent for Group Decision Support in Applicant Ranking within Human Resources Systems . This paper is basically used to replace the manual work of HR recruitment process.This paper proposes an idea of using the neural networking and fuzzy logic in a blend to sort candidate profiles for a certain company based on the requirements mentioned by the experts so that the CVs can be ranked according to the specific requirements.

2. Visualizing Consensus in Group Decision Making Situations (S. Alonso, E. Herrera-Viedma, F.J. Cabrerizo, F. Chiclana, F. Herrera). Concensus is a critical decision and requires a mixture of expertise.so this paper presents the idea of creating a tool which creates diagrams that help the experts to easily summarize and get an overview of the problem .For this clustering algorithm is used .Clustering basically identifies and represents different groups with similarities which helps in deciding the consistency and majority of the various opinions given.

3. Decision Making Approach in Recruitment using NeuroFuzzy System.(International Journal of Computer Applications (0975 8887) Volume 180 No.34, April 2018). This paper also presents the idea of neuro fuzzy agent .But it is the combination of the weighting system and Neuro-Fuzzy system.It helps the company in making the right decisions and merit based selections in the recruitment process. Variables are created along with the fuzzy tables which generate a scoring pattern and mapped back to the fuzzy variables which makes the system completely transparent.It conatins 5 phases of operation.It will take into consideration certain keywords as per the experts reqirement of the skills and characteristics of a candidate applying for a job profile which will be beneficial for an organization.

4. Feature weighting using neural networks(2004 IEEE International Joint Conference on Neural Networks (IEEE Cat. No.04CH37541). Here the paper proposes an idea for classification using neural network by extracting relevant information.It creates attributes based on the strengths of the related links in which the most important one is connected to strong links as it has more impact on the outputs.It is applied to the nearest neighbor classifier.

Problem Definition

To create a neuro-fuzzy hybrid system for scanning submitted resumes of the candidates and ranking them based on the skillset requirement for that particular job role.

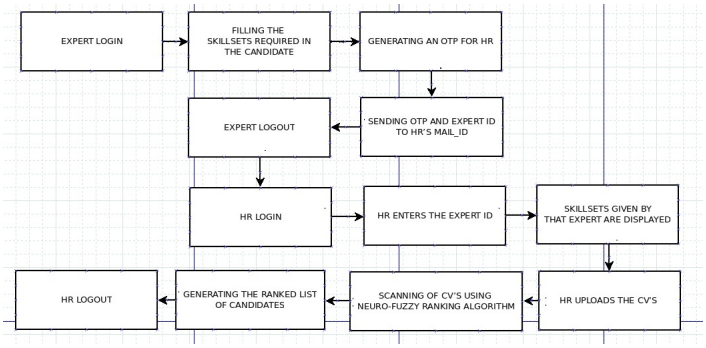

Figure 1: "Neuro-Fuzzy Agent For Resume Ranking in HR Systems"

Proposed System Architecture/Working

Our candidate ranking system consists of two main operating modules.Expert Module and the HR Module.
In Expert Module,the expert at first logs in to the system through the system's provided id and password after completing the registration successfully.Expert then selects a job-id to fill the required skill sets for that particular job.Then,a skill set form is opened in two phases.Phase 1 deals with the Qualification and Experience criteria for that job.Phase 2 deals with the Technical skill sets required for that job.It includes sub modules forexample:coding,testing,debugging,designing,etc., are the sub modules for the main module Computer and IT. Expert then selects the skill sets from the available options to clearly specify the idea regarding basic as well as the technical skill sets to be possessed by that candidate.After successfully filling the skillsets form,the expert clicks on confirm button and all the data entered for that job-id is saved.Then an OTP along with the Expert's ID is sent on the HR's mail-id and expert logs out from the system.Thus Expert Module concludes.
In HR Module,by entering the recieved OTP,the HR logins to the system.Then,the HR enters the Expert-id provided in the same mail received from the expert.After entering the Expert-id,that Expert's name is displayed along with the required basic and technical skill sets specified by that expert for that particular job.Now,HR continues the process and uploads a bunch of resumes of the candidates and then clicks on scan button.After this process,with the help of neuro-fuzzy ranking algorithms,the resumes are scanned and ranked accordingly.Feature Weighting concept of Neural Networks is used for scanning the submitted resumes and then Fuzzy sets are used along with the ranking algorithm to rank those resumes as per they match closely with the required skill sets specified by the expert for that particular job role.Here,after performing these operations on the submitted resumes,a list is generated that ranks in order of preference for that job.

Summary

The work presented in this report is related to Neuro-Fuzzy Agent For Resume Ranking in HR Systems .

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1 Publication

Paper entitled **"Paper Title"** is presented at **"International Conference/Journal Name"** by **"Author Name".**