

# Literature Survey

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S.No	Authors	Topic	Description	Limitation
1.	Jorge Valverde-Rebaza Ricardo Puma Paul Bustios Nathalia C. Silva	"Job Recommendation based on Job Seeker Skills: An Empirical Study" Department of Scientific Research, Visibilia, CEP 13560-647, S~ao Carlos, SP, Brazil.	It suggests a framework for job recommendation based on job seekers' professional skills. Using a variety of text processing techniques, the researchers have automatically extracted skills from job seeker profiles. The experimental results demonstrate the performance of the evaluated methods and configurations and can be used to select the best method and configuration for job recommendation.	This system narrows down the scope and focus of job recommendation only for Information Technology. Also the time complexity of this system increases when the scope increases.

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2.	Anna Giabelli, Lorenzo Malandri, Fabio Mercorio, Mario Mezzanzanica, Andrea Seveso,	"Skills2Job: A recommender system that encodes job offer embeddings on graph databases", Applied Soft Computing,	It proposed a recommender system that identifies the most suitable jobs as they emerge from a large dataset of Online Job Vacancies based on a set of users' skills (OJVs). To accomplish this, we process 2.5M+ OJVs posted in three different countries (the United Kingdom, France, and Germany), training several embeddings and performing an intrinsic quality evaluation. The results are evaluated using P@3 and nDCG scores in a user study of ten labor market experts.	The recommendation system is elaborate and will be deemed better if there was method to developed.

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3.	Shaha T. Al-Otaibi and Mourad Ykhlef	"Job Recommendation Systems for Enhancing recruitment Process", College of Computer and Information Sciences, Princess Nora Bint Abdulrahman University, Riyadh,	This paper analyzed the e-recruiting process and the different aspects related to applying the recommender systems in candidates/job matching problems. Additionally, in order to give a clear understanding of the job recommendation problem, a case study of applying three measures for matching candidates with job positions was presented. Finally, we plan as a continuation of this work to present a survey of job recommendation approaches that have been proposed to produce the best fit between jobs and candidates.	The recommendation system needs to focus more on quality than quantity.

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4.	Vachik S. Dave, Baichuan Zhang, Mohammad Al Hasan, Khalifeh Aljadda and Mohammed Korayem	"A Combined Representation Learning Approach for Better Job and Skill Recommendation ".	The paper propose a novel representation learning based solution to address the job and skill recommendation task. The proposed representation learning model utilizes the pairwise ranking objective which learns job and skill vector representations into a shared latent space using three pre-processed graphs. The experimental results on the CareerBuilder dataset and case studies demonstrate that our proposed methodology consistently outperforms several existing state-of-the-arts for the job and skill recommendation.	A limitation of our proposed representation learning framework is that it is transductive, i.e., it learns representation vectors of jobs and skills that are available in the input graphs

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5	Jorge Valverde-Rebaza Ricardo Puma Paul Bustios Nathalia C. Silva	"Job Recommendation based on Job Seeker Skills: An Empirical Study"	This paper focuses on recommendation of job vacancies for Information Technology professionals acting in the Brazilian market. There are 3 stages: data collection, data preparation and recommendation. In the data collection phase data is collected from a recruitment site called catho and linked in for the validity issues. This paper proposed a framework for job recommendation task. This framework facilitates the understanding of job recommendation process as well as it allows the use of a variety of text processing and recommendation methods according to the preferences of the job recommender system designer.	The presented recommendation system can make use of more features.

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6.	Amber Nigam, Aakash Roy, Arpan Saxena, Hartaran Singh	"Job Recommendation: Leveraging Progression of Job Applications"	This paper demonstrates a novel blended approach that leverages progression of job selection by candidates and attempts to make job recommendations serendipitous. Using blended methods, recommendations suggested to candidates are based on their interaction history with jobs, along with jobs that are a) similar to the other jobs applied by the candidate and b) applied by similar candidates. The approach naturally solves the candidate and job cold-start problem in the absence of interaction data.	Recommendation using similar candidates and jobs forms part of non-machine learning based recommendations and only the initial results seems promising.

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7.	Naresh Kumar, Manish Gupta, Deepak Sharma, and Isaac Ofori	Technical Job Recommendation System Using APIs and Web Crawling	In this paper, Content-Based Filtering and Collaborative Filtering of recommendations have been compared. Additionally, an aggregation plus recommender system has been devised. Content-Based Filtering recommends the results based on matching the personal preferences, collaborative filtering recommends based on the preferences of fellow users. It was concluded that a hybrid system of both of these overcomes the limitations of both of them and increases the efficiency of ranking. The proposal is to design a Job Recommender system that prioritizes quality over quantity.	Automating the crawling process is required, when a new company is added to the database. In other words, removing the one-time configuration step/process to fetch jobs of a particular new company can be done. These models can implement techniques such as KNN in collaborative filtering. Implementing NLP in content-based filtering for better and more accurate search matching can be done.



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8.	Corné de Ruijt, Sandjai Bhulai	"Job Recommender Systems: A Review"	<p>In this paper, we have considered the job recommender system (JRS) literature from several perspectives. These include the influence of data science competitions, the effect of data availability on the choice of method and validation, and ethical considerations in job recommender systems. Furthermore, we branched the large class of hybrid recommender systems to obtain a better view on how these hybrid recommender systems differ. Both this multi-perspective view, and the new taxonomy of hybrid job recommender systems has not been discussed by previous reviews on job recommender systems.</p>	<p>Some 12 methods, currently classified as MM-SE, are quite similar to cascade hybrids. I.e., if a cascade hybrid would have used the semantic representation of jobs and job seekers as features in a boosting model, instead of using the similarity between the two as feature, it would have been classified as MM-SE. A similar argument holds for the feature augmentation and cascade hybrid classes.</p>