Research on It Job Recruitment Demand Information

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Abstract: With the development and popularization of higher education, the number of college graduates in my country has been increasing year by year, repeatedly hitting historical highs; in the development of big data and artificial intelligence, the gap between the supply and demand of IT data jobs is also increasing. However, due to the problem of structural recruitment contradictions and asymmetry of recruitment information in talent recruitment, it is often difficult for graduates to find ideal jobs and enterprises find it difficult to recruit ideal talents. In this context, Internet recruitment breaks the limitations of geographic space, expands the scope of both supply and demand, and becomes an important channel for recruiters to release information and candidates to obtain information. Thanks to the widespread application of online recruitment, the real-time release of Internet recruitment information has improved the problem of information asymmetry in talent recruitment, but the recruitment text still has the characteristics of massive and unstructured, and there are certain technical difficulties in text statistical analysis. . Extracting the subject terms of online recruitment texts and analyzing the recruitment needs of IT data-related positions in the era of big data will positively promote higher quality and fuller employment for college graduates with majors in data science. Based on this, this article uses Internet recruitment data to systematically study the recruitment demand information of data-related positions.

1. Introduction

From the perspective of job search theory, there are both structural contradictions in the labor market and insufficient information in the labor market. On the one hand, this problem reflects that the demand for talents of enterprises is continuously updated with the emergence of new industries and business models; on the other hand, it reflects that the knowledge structure and practical ability of students at school are relatively lagging, and the gap between the demand for talents in the fast-developing market There are faults of convergence. The poor connection of employment information between enterprises and college students makes it difficult for college graduates to have rich and diversified employment opportunities to meet the needs of enterprises in a timely manner, which brings greater difficulties to high-quality and fuller employment. In today's era, online recruitment platforms have now become the main way for recruiters to release information and candidates to obtain information. Online recruitment information directly reflects the company's requirements for the basic conditions, abilities and qualities of talents, provides candidates with job search references, and can also reflect the current status of society's demand for talents. Online recruitment information is mostly stored and displayed in text form, which has the characteristics of mass and unstructured. When searching for recruitment information, college students often face the problem of too much information and difficulty in focusing on key information. Because the statistical analysis of online recruitment information is beyond the scope of traditional analysis methods, it is difficult for college graduates to accurately grasp the changing trend of the market's demand for talents when searching for recruitment information, resulting in professional mismatches, job hunting failures, and low job satisfaction. And other employment issues.

2. General Methods of Research on Recruitment Demand Information

In recruitment information, structured data includes numerical data and categorical data, which can be expressed through a two-dimensional table structure and stored in a relational database. The

structured data in the recruitment information mainly includes structured text fields such as job name, work location, work experience, and educational background. The data collection of structured recruitment information is less difficult, and the statistical analysis method for it is relatively simple, and it can intuitively and accurately explain the distribution characteristics of specific positions and the characteristics of job requirements. At present, relevant scholars have done a lot of analysis on the above structured text data, and describe the distribution information and basic requirements of specific positions through a combination of qualitative analysis and quantitative analysis. The main research methods include frequency statistics, ratio analysis, and correlation. Research methods such as sexual analysis.

Among the research methods of structured recruitment texts, the most commonly used method is frequency statistics. Through the statistical analysis of classified data such as work location and work experience in the recruitment information, the regional distribution and industry distribution rules of specific positions are obtained, and the company's recruitment preference for information such as academic qualifications and experience in talent recruitment is obtained, thereby revealing the market for specific positions Demand, provide employment guidance for college graduates, and assist colleges and universities to improve their training programs. The statistical analysis of structured recruitment text has the characteristics of simple operation and intuitive display, which can accurately grasp the basic trend of corporate recruitment. However, specific job requirements are usually displayed in the form of natural language. Therefore, the research on the structured text of recruitment information cannot dig out the specific recruitment needs in the recruitment information, and important information about the recruitment needs is lost in the analysis process.

The main part of the recruitment information is usually unstructured text data, including important information such as job responsibilities, job requirements, company profile and so on. Unstructured text data has natural language properties and cannot be counted directly through quantitative analysis. Therefore, it is first necessary to transform unstructured recruitment information into structured text data. For unstructured recruitment text, research is mainly based on methods such as keyword extraction, topic word extraction, text clustering, association rules, etc., and then frequency statistics and visual display of the extracted keywords, and specific analysis of different types of recruitment data , To mine the hidden association rules behind the data. Among them, keyword extraction includes supervised and unsupervised research methods. The supervised method mainly relies on experience and a rich and complete manual vocabulary, which has high extraction accuracy and high labor costs; unsupervised methods mainly Completed by machine learning algorithms, no need to generate and maintain the vocabulary. Subject word extraction, text clustering, and association rules are also unsupervised methods, which are currently the mainstream research methods. When there are distinct concepts or topics in the corpus, the topic model can be used to find potential hidden words in the corpus. Extracting topic words from the massive text information helps us quickly browse and obtain effective information. Aiming at the characteristics of the text with distinctive themes in the recruitment information, this paper chooses the method based on the topic word extraction to study the recruitment demand information.

3. Analysis of Recruitment Needs for Data-Related Posts

Take the recruitment information of data analysts, database engineers, algorithm engineers, and data architects as examples, use network analysis methods to analyze the subject terms in the recruitment information of IT data jobs, and mine the core recruitment of IT data jobs from the massive Internet text data The correlation between needs and keywords of different recruitment needs. According to the subject extraction of recruitment information, the recruitment needs of IT data jobs are mainly reflected in four aspects: education background, work experience, knowledge and skills and personal qualities. This section analyzes and demonstrates the specific recruitment requirements of IT data jobs based on different recruitment requirements themes.

In the recruitment information, the educational background theme mainly includes the educational background and professional requirements of the company for job seekers. The academic background reflects the knowledge level and work ability of college students to a certain

extent, and is an important reference indicator in corporate recruitment. According to statistics, 64.6% of job postings in IT data jobs have clear requirements for educational background, among which 83.2% are data analysts, 45.4% are database engineers, 70.1% are algorithm engineers, and 37.5% are data architects. Data analysts and algorithms are visible. Engineers have relatively clear requirements for educational background, while database engineers and data architects have relatively loose requirements for academic background. On the whole, the requirements of IT data jobs are mainly undergraduates, and there is less demand for masters and doctors; their main counterparts are computer, statistics and mathematics-related majors; some recruitment information clearly mentions the recruitment of 985 , 211 college graduates. At the same time, there are differences in the educational background requirements between different positions. Use the co-occurrence information of the subject terms between the secondary education requirements and professional requirements of specific IT data positions to calculate the relevant subject terms and professional related topics of the recruitment information for IT data positions. The co-occurrence matrix of words is used to draw a network diagram of educational background keywords for data-related job recruitment information.

In contrast, algorithm engineers have more detailed requirements for educational background and more professional work, and there is a greater demand for highly educated talents in computer-related majors. The educational background requirements of data analysts, database engineers and data architects are mainly undergraduates. The most suitable majors for data analysts are statistics, mathematics and computer majors, and the most suitable majors for database engineers and data architects are computer Related majors. For IT data job recruitment, the higher the academic requirements, the narrower the scope of professional requirements, and the more professional the work content.

The work experience theme in the recruitment requirements includes two parts: historical work time and work content. Under normal circumstances, companies recruit experienced employees to reduce training costs. Recruitment information usually contains the specific requirements of the company for work experience. In the recruitment information for IT data jobs, recruitment sentences expressing work experience requirements accounted for 27.2% of the recruitment information text collection. Among them, data analysts 24.9%, database engineers 27.8%, algorithm engineers 25.8%, and data architects 39.5 %. It can be seen that work experience is an important reference factor in recruitment for data-related positions, and each IT data-related position has specific requirements for job seekers' work experience. In particular, data architects are more inclined to recruit experienced job candidates. On the whole, the range of historical working time requirements for IT data jobs is between 1-5 years, and different data jobs have different work experience requirements. In the previous research on recruitment needs, researchers usually analyze the work experience requirements of the post through statistics of working hours, while ignoring the specific work content contained in the work experience. This article uses the co-occurrence information of historical working time and work content subject words, and uses network analysis methods to mine the experience requirements of IT data job recruitment. Part of the specific requirements for working hours and job content shows the work experience of IT data job recruitment. Part of the core requirements.

Recruitment information for data analysis positions mainly includes data analysis skills, data mining theory, database and big data processing, and business intelligence (BI) related knowledge and skills requirements. In terms of data analysis skills, this position requires mastery of statistical analysis software such as SPSS, SAS and Office software such as Excel and PPT; familiarity with programming languages such as R, Python or C; and ability of data mining and modeling. In terms of data mining theory, this position requires mastery of statistical analysis methods such as cluster analysis, regression analysis, and association analysis; mastery of machine learning algorithms such as support vector machines (SVM) and neural networks. In terms of database and big data processing, data analysts need to master SQL language and MySQL and Oracle database application technologies; be familiar with Hadoop distributed systems and Hive data warehouse tools. Data analysts have fewer requirements for business intelligence, including PowerBI software,

ETL and other data warehouse technologies, and Tableau and other data visualization software. It can be found that the most important knowledge skills in data analyst recruitment are data analysis skills and database technology, supplemented by data mining theory. For job seekers in data analysis positions, it is necessary to be proficient in data analysis skills and database technology.

4. Conclusion

Under the goal of higher quality and fuller employment in my country, this article takes data analysts, database engineers, algorithm engineers, and data architects in IT data jobs as examples to construct a model for the keyword extraction of IT data job recruitment. Visually display the keywords of recruitment demand, improve the information asymmetry between enterprises and college graduates in the recruitment market, and provide references for the career planning and employment of college graduates. In the stage of collecting and preprocessing IT data job recruitment information, this paper selects the nationwide IT data job data in Internet recruitment, and uses natural language processing technologies such as text clauses, Chinese word segmentation, and removal of stop words and special characters. Unstructured recruitment information is processed for text standardization, and the text data is characterized as required. In the subject word extraction stage of IT data job recruitment needs, this paper combines the LDA subject model and word2vec word embedding technology to construct a recruitment demand subject word extraction model, which breaks down the recruitment needs into four categories: education background, work experience, knowledge and skills, and personal qualities Subject, extract the recruitment demand subject words of each data type post based on different demand themes. Finally, in the stage of IT data job recruitment demand analysis, this paper uses network analysis methods to mine the co-occurrence information between recruitment demand keywords, and analyzes IT data job recruitment information from the perspectives of education background, work experience, knowledge and skills, and personal qualities. Visual display and recruitment demand analysis of the core job requirements in.

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References

[1] Song Tingting, Han Yu. On the application of recruitment system in large IT companies. Shang, 2013, 6(008): 41-42.

[2] Cheng Wen. A glimpse of the demand for talents in IT companies. Success and Employment, 2000, 3(011): P.4-4.

[3] Meng Jingjin. Analysis of Recruitment Work in IT Outsourcing Industry. Population and Economy, 2012, 000(0z1):24-25.

[4] Zhou Jianhua. IT technical staff recruitment analysis and skill demand forecasting from the perspective of big data. Information Weekly, 2018, 2(017):1-2.

[5] Zhang Jian. Analysis and Forecast of IT Talent Demand in Pudong New Area. Shanghai Labor and Social Security, 2002, 11(001):19-20.

[6] Lan Chunhong. Methods to improve the effectiveness of online recruitment of IT personnel. China High-Tech Enterprise, 2012, 12(031): P.135-136.

[7] Wang Qian. Analysis of improving the effectiveness of IT enterprise network recruitment. Journal of Wuhan Vocational and Technical College, 2013, 12(005): 26-28.