

ARTIFICIAL INTELLIGENCE WITHIN RECRUITMENT: ELIMINATING BIASES IN HUMAN RESOURCE MANAGEMENT

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Abstract

To study the effectiveness of AI in eliminating the conscious and unconscious biases within the recruitment process. Artificial Intelligence (AI), the foremost debated and foretold technological advancement, has taken management over varied functions within the field of science, engineering, and business. HR departments have focused on a single, unsophisticated scheme for the last decade that would help end-to-end recruiting workflows, from applicant sourcing to onboarding a new employee. Will artificial intelligence be able to eliminate conscious and unconscious biases in the recruitment and selection process? The exact area of eliminating biases for choosing the eligible candidates during the recruitment process has not yet been sufficiently explored. The views are collected from HR managers and their colleagues to solve the research problem.

Keywords: Recruitment using Artificial intelligence, robotic process automation, HR agility, workforce management,

Introduction

AI is outlined as, "the science and engineering of creating intelligent machines". Technological advancement has developed thus quickly and invaded our daily lives. These days the face of HR is commonly a portal, instead of an individual. Companies need to be competitive in the economic landscape, and hiring employees is a way to become effective. All major companies are searching for the best skilled and qualified employees in their region. Recruitment is considered to be one of the HR tasks during the selection process, and the vital processes of the development of human resources are staffing (Poorangi, Razavi, Rahmani, 2011). There have been some great changes in our economy, society, and culture with the Technology Advancement (Ma & Ye, 2015). These emerging developments are affecting us. Organizations regularly and it is clear that most of the management areas have met The burden of information technology, and also the management of human capital (HRM) (Bondarouk & Brewster, 2016 (Bondarouk & Brewster, 2016; 2662; Tohidi, 2011). HR Recruiting and selection as an important part of HR The position of HRM was impacted by the Revolutionary change in technology. The Increased sophistication of emerging technical developments Background and its relation to the rapidly changing world the business atmosphere has altered the Conventional methods of selection of staff by making it much more dependent on technology (Everset, 2005).

Most companies currently offer universal access to HR services through technology and internet-based mostly applications, dramatically dynamic the follow of human resource management.

Technology has unendingly enabled recruiters to method additional candidates and delivers the next quality, additional price effective service to each job seekers and employers same (Okolie, 2017 & Singh, 2003), and AI is anticipated to be no completely different (Tandon, 2017 & Raviprolu, 2017) one in all the foremost outstanding innovations has been computer science (AI). “In this era of constant modification and digital skills shortages, finding the proper talent is more difficult than ever. By victimization AI businesses will establish a variety of prime candidates quickly and simply, and at a pace that keeps stride with the frenzied speed of recent business. Now, hour managers implement computer science technology to recruit, retain and encourage the expert men that results in success and growth for each leader and worker. AI in recruiting incorporates a major role in talent acquisition (Madeline Laurano Co-Founder & Chief analysis Office). Corporations are investing heavily in technology similarly to rent talent from the trade. As per the latest trade norms, computer science, data processing, pattern matching, and keyword matching are a number of the technologies that most Human resource activities have gotten obsessed with. Social media scraping tools are another form of computer science recruiting tool. These bots will collect large amounts of knowledge information} through associate applicant’s social media profiles and after that use this data to predict bound behaviours AI-supported future engagement levels. Unilever is one company that has used a good computer science screening method designed with the assistance of its partners Pymetrics. Mya, associate AI recruiting assistant created by FirstJob, could be a chatbot that interacts with candidates to verify they meet job necessities, answer queries and keep them au courant on their application’s standing.

In the article by Baxter (2018) he attempts to predict the trends which can take over enlisting in 2019. He suggests prognostic analytics to require away a number of the guesses that take place in enlisting, however, he conjointly brings up AI as a tool that can be used for interviewing candidates (Baxter, 2018). The implementation of AI in HRM and recruitment will be referred to as the modern era of HR, as AI transforms the enlisting industry by eliminating repetitive activities performed by human recruiters (Upadhyay & Khandelwal, 2018). AI takes several alternate forms, such as robots, bots or packages (Tecuci, 2012). The idea of AI is one of all the foremost novel domains in engineering and science and it's been studied since the Second war. The name of computer science was verified in the year 1956 (Stuart & Norvig, 2016). Salin and Winston (1992) outlined AI as being a collection of techniques that enable computers to accomplish tasks that will otherwise necessitate the reasoning skills that human intelligence brings. Consistent with Brigit Nilsson (2005) machines ought to perform most of the roles that human intelligence demands, that he concerns human-level AI.

Human Resources info systems (HRIS) have considerably developed over the last 20 years this intense concentration on AI worldwide and competitive tendencies. although organizations have already got the power to check the validity of a range take a look at for brand new hires, associate HRIS can also facilitate the organization use longitudinal performance information to assess the effectiveness of the choice take a look at for predicting semi-permanent performance and tenure with the organization. The web-based technology employed by e-recruiting helps organizations attract stronger and additional various person pools. E-recruiting permits organizations to handily reach candidates across the country or around the globe. By creating this method additional convenience, organizations reach a dead set of those that might not be actively trying to find alternative opportunities, however, WHO might discover an edge associated prefer to apply thanks to the benefit of applying. A recent survey found that just about

seventy-five p.c of organizations are victimization technology to support enlisting, and this variety is anticipated to grow to almost eighty-five percent at intervals a successive year. The rock bottom line is that organizations that make interactive and esthetically pleasing, easy websites are rather more doubtless to convert passive lookers into active candidates. One of all the foremost necessary factors within the recruiting method is developing a relationship with the candidate and guaranteeing that communication sends acceptable signals concerning the culture of the organization. Advanced computer science solutions, however, utilize custom algorithms that are created specifically to link distinctive job performance measures to potential candidates that best exhibit these qualities. The aim of this is often to determine the counselled approach for recruiters, each in-house and consultancies.

Future-Proofing Human Resource Management

HR departments have focused on a single, unsophisticated scheme for the last decade that would help end-to-end recruiting workflows, from applicant sourcing to onboarding a new employee. However, as competition for high-skilled staff has recently tightened, the ability of current recruiting software to hire, attract and retain top talent has proven to be limited. Built upon AI, big data, and alternative innovative technologies, they target streamlining or utterly automating numerous aspects of accomplishment, cutting hiring prices, or reforming the talent acquisition culture. In reality, software integration is a tricky challenge, and when it comes to systems rich with thousands of people's personal and commercial data, the risks become much more tangible. To prevent them, businesses should always allocate security testing resources before their software goes live, as well as issue-specific data security guidelines for their employees. A chatbot will save a lot of time and effort for recruiters while ensuring that no CV slips through the cracks and that no candidate without input is left.

As virtual assistants have become very popular in both personal and professional lives, candidates who have learned to prioritize quick response over human contact will most enthusiastically accept conversing with a chatbot. An enterprise candidate tracking system becomes a golden mine containing thousands of CVs, given that a single job opening attracts hundreds of resumes, and some of them might be worth taking another look at when another relevant vacancy opens. A talent rediscovery tool powered by AI will automate the resume screening. It will analyze open job descriptions together with the CV pool and shortlist the most appropriate candidates from the extensive database based on their education, skills, and other defined attributes, incorporated into a legacy ATS. Unfortunately, regardless of how competent an HR professional is, they may still be biased, consciously and unconsciously, like all of us humans, which could manifest in an interview and rule hiring decisions. In this regard, in their recruiting practices, companies that do not want to lose great talent because of the human factor could consider implementing blind hiring software.

Blind hiring is aimed at anonymizing the applicant as much as possible and leaving for the recruiter's review only their skills and competencies. Today, the market offers a decent range of blind recruiting tools: from apps for writing inclusive job descriptions and ATSs that automatically conceal personal information in the CVs of the applicants to impartial skill evaluation platforms via tests and writing tasks. This technology can prove a viable tool for diversity-oriented organizations due to its usefulness in getting around racism without unnecessarily complicating recruiting as a mechanism or straining the budget. HR specialists

leverage tons of data about both future and existing workers regularly. Yet, equipped at best with standard descriptive analytics tools, they can only gain insights into and interpret past performances on their own. Instead, using ML-powered predictive analytics software will enable recruiters to acquire accurate future forecasts and make better-informed choices in various aspects of their job.

Instead of pressuring time-constrained people to adopt biased procedures to shrink the pipeline from the outset, AI may analyze the entire pipeline of candidates. We can only remove the bias by using a fully automated top-of-funnel method due to the shrinking of the initial pipeline so that the manual recruiter's ability can accommodate it. Due to its male-biased recruiting algorithm, Amazon was nationally lambasted for months.

Literature Review

In the words of Dr A.P.J. Abdul Kalam (2010), when you have the core strength among you that survives all harm, the turning aim inside the method of growing up is and never stop fighting until you gain your destined position, that is, a singular YOU. The hardest war that any person can ever imagine fighting. Accomplishment is defined as the observation of finding the right candidates that form an applicant pool that includes a company's associate open job vacancy (Stoilkovska, Ilieva, 2015). If the wrong individual is hired, the organization will experience several economic losses instead (Newell, 2005; natural scientist 1988). Recruiting the right person within the pool of talent is that the main operate of the accomplishment method, in detail, it's vital for any organization to pick, attract, and manage the gifted resource, (Van Esch, 2020) why as a result of talent is that the most strategic purpose that directly results in the enterprise gain. Moreover, evaluating the appliance in each stage is very important to achieve the proper person to pick the proper skills. This can be useful to indicate the proper responsibility that can empower the accomplishment method with success.

A piece of writing revealed by Forbes.com titled “The rise of Facebook recruitment” expressed that job seekers would have a transparent image regarding what they're searching for whereas looking for a prospective job. Further, the recruiters also will have a concept of the World Health organizations as their prospective candidates. The Facebook Career Page helps to own a more robust match between a candidate and a corporation. For example, Earls could be a casual feeding eating place run in North America has enforced a Facebook recruiting campaign, and also the reason behind selecting FB recruiting is as a result of it allowing them to convey company policies, procedures, and cultures in and of itself to potential hires. They are conjointly additional that as Twitter and other platforms didn't function FB did for social accomplishment.

New technological developments and fast organizational changes need a new approach to managing human resources-supported data (Bara, 2015). Technology is moving all over, and it's impacting the method things operate, riotous technologies square measure influencing. Human resource management functions have conjointly been stricken by these technologies, and it's within the type of digital technologies (Lochner & Preuß. 2018) like computing, robotics, and networks. Within the gift, computing is employed in human resource management functions like human resource designing, accomplishment & choice, workers observance & coaching, learning, legal activities & communications, payroll management, and performance management (Nawaz, 2019b). To speak with humans it's a requirement to own an intensive understanding of written

and verbal communication patterns of persons that is why the AI is needed to with success incorporate the tongue process (Stuart & Norvig, 2012). Computing is that the product of a replacement age that has reduced heaps of repetition adds the sphere of accomplishment (Dhamija, 2012). AI may be utilized within the screening method by characteristic relevant resumes and extracting info so automating the accomplishment method (Kaczmarek, Kowalkiewicz & Piskorski, 2005). The North American nation organization Hirevue introduced AI-enabled technologies that may analyze look and languages, however, the person is responsible for each question to the identification of favour of speaking (Izario et al., 2017), this mechanism can facilitate picking the proper talent into the enterprise. In line with a report by Narrative Science, it had been found that around sixty-one of the companies have already adopted AI in their operations that is higher compared to thirty-eighth in 2016 (as cited in Rayome, 2018), this explains that organizations square measure considering AI for his or her business operations.

Big information is currently sanctionative programs to achieve non-routine, psychological feature tasks. The result shows that Raviprolo (2017) predicts that AI can save accomplishment companies time and cash by delivering a lot of correct analysis of candidates and company needs through these new analysis strategies. Okolie et.al. (2017) expressed employers had advantages as well as lower prices, a lot of candidates, and higher candidate matching with candidates having a better application method, with a good kind of job opportunities and at last a bigger response rate from the leader to get the feedback. Poor hiring choices square measure calculated at \$1.6 million for every 1,000 hires produced (Randstad, 2018). Bullhorn (2018) indicates that power is one of two factors for rising achievement in machine-driven processes. Another incentive is to communicate with applicants, who argue that chatbot technologies are always the best way to try and do this. Looking at the recruiters and their duties, it is estimated that they pay between thirty-thirds (de Lara et al, 2018) per hour (CognitionX, 2017) of their applicants for operational day sourcing and screening. AI is about to eradicate this burden (HRPA, 2017), so the expense of recruiting candidates can be decreased by up to seventy-one and the ability of recruiters can be increased by up to three times (CognitionX, 2017). Faliagka et al (2012) agree directly, adding that AI can scale back the time needed to fill vacancies further as helping the recruiter in ranking candidate suitability up the candidate expertise are a few things a recruiter is tasked with, but because of the resolution, AI is argued that the current level of body tasks within the trade prevents them from doing so (May 2016). HR professionals ought to understand pioneer HR practices, price management measures, and adapt to the speed of the amendment. Continuous skill development is obligatory for HR professionals. [1]

Bogdan Ionescu et al. [12] essentially built the architecture of a conversational entity in August 2015 for synergetic rich text, media drafting, and absorption. "THE CHAT" is the main word that plays an important role in reconciling the activities of the community. The primary aim is the formation of data or material in a contemporary way by one or more members of a community. The objects are exclusively web-based and provide information on sharing functions to further promote users in their synergistic work concerning the incorporation of objects into the content. Haoliang Wang, et. al [13] also prepared a "Touch Talk" conversational application, which is a social TV interaction design. The main purpose of touch talk is to have real-time comment sharing when watching TV and to experience a much-improved communication program. A number of the properties of social TV are analyzed after examining the actions of viewers. There is a rational and significant forum for some of the key social TV designs, in line with the

findings of those studies. G. B. Satrya et al. [14] confabulated about private chat residual info, secret chat, and hence the hidden chat in Android social messenger apps and further gives an exegesis about the objects that are initiated by social media. Information on the messages produced, how they are comparable to each other, and how interpretations are further given between them.

Research Methodology

In this research, we have gone through collecting data by secondary means and exploring the problem and the possible solutions for it. Statement of Problem: Can the efficiency of AI be made use in the elimination of conscious and unconscious biases in the recruitment process? Research Gap: Many studies have explored several aspects of the use of AI-based recruitment that can help in boosting the hiring process in terms of accuracy and advancing technology. They have often looked into the impact of the technological updates and also the effects of the negative factors during the recruitment process that can lead to reduced work-load for the HR managers. The area of eliminating biases for choosing the eligible candidates during the recruitment process has not yet been sufficiently explored. Research Objective: To study the effectiveness of AI in eliminating the conscious and unconscious biases within the recruitment process.

Discussion

We collected secondary data related to information provided by the HR managers of several companies where the use of AI has been implemented successfully for the recruitment process. The managers explained in detail that the process is quite complex and removing biases completely is impossible. But the use of artificial intelligence for the purpose of sourcing the candidates at the initial stages of recruitment has proved to be of great help for the purpose of eliminating conscious and unconscious biases and it has also reduced the time consumption in the process. The use of AI chatbots in companies like **L'Oréal, Adecco, Hays, and Deloitte** for the hiring process guides the candidate throughout the process which is called the **Mya system**. Starting from the job search and up to the onboarding process, the chatbots act as full support for carrying the candidate through the process to the screening area. The solutions are supported by a team of experienced ML engineers and NPL engineers.

The use of Mya guide is programed by leveraging the state-of-the-art approaches from natural language processing like-

- by using semantic parsing, intent classification and named entity recognition, the chatbot can capture meaningful information from the human responses;
- By the use of dynamic dialogue management, Mya can understand context, complex statements, and changes to previous answers;
- by learning continuously from millions of interactions, the dialogue system constantly improves the accuracy of its responses.

L’Oreal Manager- “The results of the first 10,000 recruiting conversations show that Mya engages with 92% of our candidates in an efficient way and achieves a near 100% satisfaction rate. We’ve received great feedback from our applicants. Many commented on how easy and personal the experience felt.”

Hiretual offers another set of AI-based solutions that are comprehensive and useful for most recruiting activities. It helps in finding sourcing solutions that relies on AI engines consisting of 40+ platforms, 700M+ candidate profiles and 100M+ job descriptions. It also has engagement solutions that seamlessly allows recruiters to create candidate pipelines by maximizing the recruiter’s productivity and candidate engagement.

- With Hiretual, **Poshmark**, a leading social commerce marketplace, achieved 40% less time spent on sourcing, a 75% increase in response rates, and a 60% increase in the number of qualified leads.
- After deploying Hiretual, **Chenega Corporation** no longer had to manually hunt through candidate profiles in search of the top candidates. They reduced time-to-hire by 10%, spent 50% less time on sourcing, had a 30% increase in response rates, and a 40% growth in the number of qualified candidates.

Textio has augmented writing solutions that help companies to speak the language of their job candidates that helps in increasing the effectiveness of the hiring process as follow-

- **Textio Flow** allows writing a new job ad from scratch in minutes.
- **Hiring Score** predicts how effective the job posting will be at recruiting top candidates.
- **Gender Bias Meter** helps recruiters reveal the hidden gender bias in their writing and suggests alternatives to draw a broader applicant pool.
- **Central Library**, the shared repository for the hiring documents and all the key phrases, helps companies sound consistent and in line with the company culture.

Companies like **Cisco**, **McDonald’s**, **Johnson and Johnson** use Textio to boost the hiring process by conducting initial interviews with the use of AI. **Procter & Gamble** has seen a 30% increase in their number of qualified applicants after adopting Textio. **Wade and Wendy’s** AI-driven solutions help companies to automate their recruitment process for both job seekers and recruiters. **Wade** supports candidates in job seeking and advancement efforts. After learning about the person’s skills, experiences, and goals, Wade guides job seekers to the right job opportunities for their professional growth. **Wendy** is a solution for recruiters who want to offload repetitive tasks to a smart assistant. A recruiter only needs to post a job description and then Wendy will proceed with identifying the best talent, promoting job descriptions with partners and email marketing campaigns, chatting with candidates, screening and shortlisting applicants, and scheduling interviews with the use of its robust knowledge graph that consists of conversational utterances, linguistic logic, and attributes about job seekers, candidates, and job positions.

Fortune 100 manufacturing organization deployed Wendy for the purpose of sourcing as well as screening candidates. This AI-Driven chatbot successfully conducted 100s of in-depth personalized conversations with candidates and has identified 325 interested and qualified candidates and has scheduled the interview for them.

After a detailed discussion, we came to a point that the use of artificial intelligence for the purpose of eliminating biases has remained successful only at the sourcing stages of recruitment. The managers reported that the initial stage where the candidates are sourced based on limited criteria like, getting shortlisted based on job profiles, scores, hands-on experience, job description provided by the company, is done by the use of artificial intelligence without the intervention of biases. The use of artificial intelligence is prevalent in all the stages and for all the purpose of recruitment but the efficiency in eliminating biases has only been successful within the sourcing domain. The reason behind such a problem is what kind of data is being fed to the artificial intelligence software for fetching the purpose or, most importantly, who is feeding the data. The software is found to respond in the way it is being asked to. The developers are asked to put criteria for the purpose of judgement in such a way that it automatically stands as a barrier when it comes to eliminating biases. The multiple attempts to remove biases while designing an artificially intelligent software has not yet achieved a total success in the areas of screening and selection. Although developers and managers are putting efforts to check the criteria and withdraw errors, the results are not yet satisfactory as reported by the candidates. Except for sourcing, the percentage of effective unbiased screening and selecting, is quite low and the managers are still preferring it in the form of human interaction for choosing the ideal candidates. So, we came to a point that artificial intelligence can help in eliminating conscious and unconscious biases within recruitment only if the data that is being fed to the system is unbiased.

Propositions Development

1. There is a relationship between artificial intelligence-based recruitment and the quality of the candidates.
2. Artificial intelligence helps to eliminate the biases in Recruitment.
3. The artificial intelligence-based recruitment system helps to shorten the span of the recruitment process.

The research can be conducted more efficiently with the use of primary data that might help in reducing the possibilities of errors. Few sectors were left untouched like the PSUs and startups. Also keeping in mind the current scenario, where Covid-19 has affected and changed the whole recruitment system, that area has not been explored in this research.

Conclusion

We started collecting data by secondary means and also started exploring the possible solutions about the statement that will the efficiency of AI be made use in the elimination of conscious and unconscious biases in the recruitment process. The use of artificial intelligence is very regular in every area of evaluation. The importance of artificial intelligence and its subsequent components have been known for quite a long time now. They are being looked upon as tools and techniques to make this world a better place. Artificial Intelligence speeds up the recruitment process by providing automated tasks and makes the recruiter more productive. We found that the use of artificial intelligence for eliminating biases has remained successful only at the sourcing stages of recruitment. In the hiring process the most time consuming part is sourcing and screening. With the help of AI recruitment software, sourcing and screening candidates from multiple sources had become easier. The use of artificial intelligence is prevalent in all the recruitment steps but we can see that it has been successful for eliminating biases in only sourcing domain.

The reason behind such a problem is what kind of data is being fed to the artificial intelligence software for fetching the purpose or, most importantly, who is feeding the data. The developers are asked to put criteria for the purpose of judgement in such a way that it automatically stands as a barrier when it comes to eliminating biases. Multiple attempts to remove biases while designing an artificially intelligent software has not yet achieved a total success in the areas of screening and selection. We found that if the data that is being fed to the system is unbiased then artificial intelligence can successfully remove conscious and unconscious biases within recruitment.

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