Human Resources in The Age of Artificial Intelligence

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Introduction

We are living through the Fourth Industrial Revolution, in which automation is disrupting traditional businesses and practices. The Human Resources (HR) domain is not immune to Industry 4.0. as digital transformation has taken place throughout various HR functions, from recruitment and selection, performance appraisal, to training and development. According to The Litter® Annual Employer Survey 2018, recruiting and hiring received the highest acceptance rate (49%) of applying Artificial Intelligence (AI) across all of the HR functions. HR professionals are encouraged to embrace the benefits of smart technology in replacing repetitive tasks of their jobs. Many HR tech startups now provide AI-driven talent acquisition, saving tremendous time and effort for HR managers. These innovations narrow down the candidate pool to only those who would be a good fit for the role as well as the organization.

Top HR Tech Startups

Job Postings: Textio
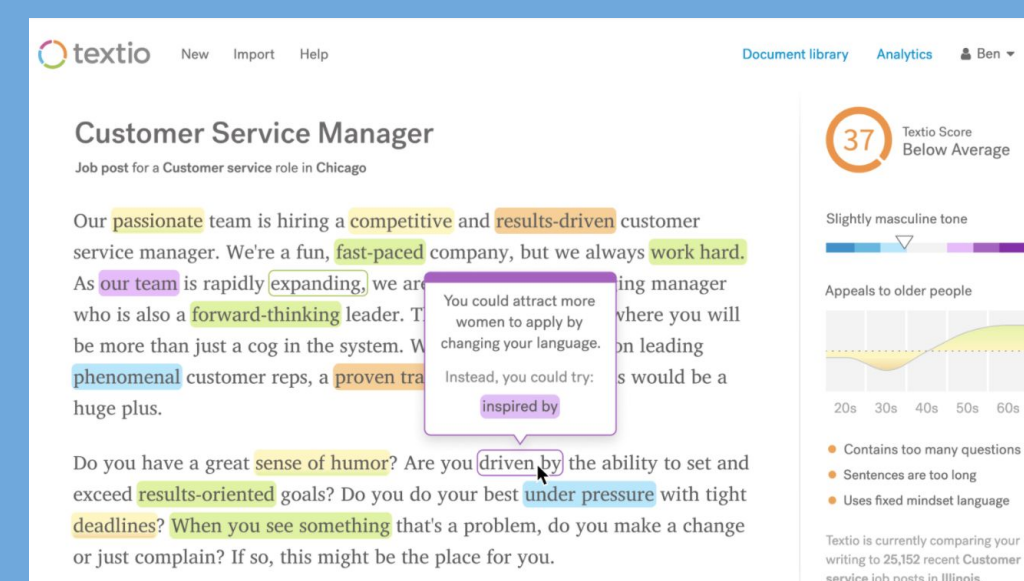
The first task of the recruitment process is outlining the competencies and skills desired in a new hire, and putting them together in a job ad. However, to stand out from competitors, this job ad needs to be carefully curated and effective in reaching the right candidates. Textio offers a solution as an augmented writing platform that speaks the language of potential applicants. It is a predictive engine, made up of Natural Language Processing (NLP) and Text Analytics, which studies monthly data of millions of global jobs and their hiring outcomes to identify the most successful language patterns in job postings. Furthermore, its Hiring Score feature rates the overall performance of an ad, while Gender Bias Meter points out hidden bias in word choice and comes up with neutral replacements. Additionally, Central Library keeps track of all of the previous documents to make sure that each job post accurately reflects the company culture.

Candidate Sourcing: Hiredscore
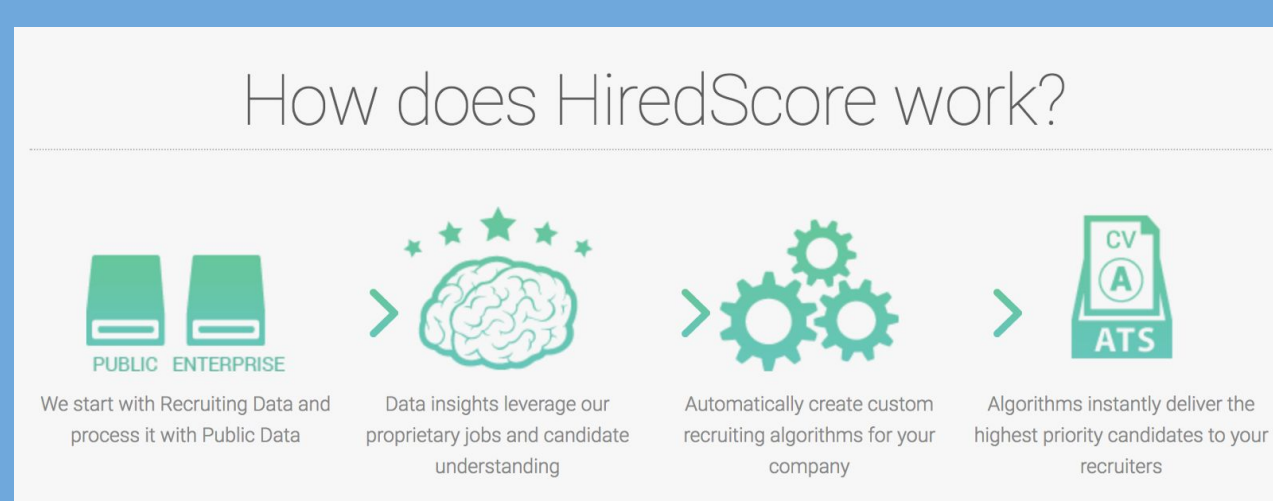
After the posting has attracted a number of applicants, recruiters now face the challenge of filtering a high volume of applications. This when Hiredscore and its proprietary and in-house data science as well as machine learning (ML) technology step in. The algorithm is automatically tailored to different talent types, external vs internal or active vs passive for example. It is able to do so thanks to deep learning of 25 millions resumes, 50 millions job posts, and 21 thousands career trees. Some of HiredScore's key features include applicant prioritization, automated data analytics of successful candidates, and seamless integration into the existing HR system. Spotlight also offers instant and unbiased candidate scoring, while Fetch proactively reviews past candidates and employees whose experiences are relevant to the positions.

Candidate Engagement: Mya
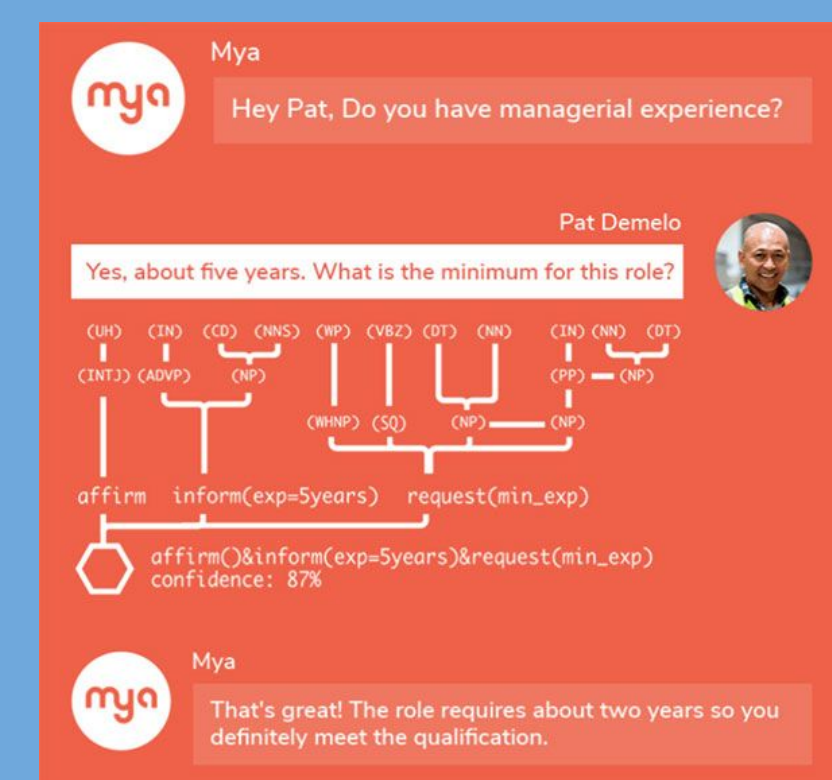
Once a pool of candidates has been filled, keeping them constantly updated with their application becomes crucial. However, FAQs cannot adequately answer individual questions and chatting one-on-one with thousands of candidates might be overwhelming. The conversational chatbot Mya has been employed by many companies for these reasons. Mya is not only able to handle complicated conversations but it can also screen the applicants while doing so. Moreover, based on the criteria given, Mya looks for passive job seekers that fit the role description. Mya is developed by semantic parsing, named entity recognition (NER), and intent classification, which allow it to detect meaningful information in each dialogue and respond appropriately based on the context as well as previous answers.

Job Interview: HireVue

Interviewing is one of the most important and also challenging parts of the hiring process. HireVue, the best known AI-powered interviewing platform, combines predictive organizational data with technology to augment decision-making. ML, specifically voice and facial recognition, analyzes tone, vocabulary, facial expressions, and body language to identify the right talent. HireVue is most appreciated for its evaluation of a wide candidate pool fairly with structured interviews. These can be conducted live to connect recruiters, hiring managers, and candidates in real time, or on-demand, which allows global applicants to record themselves at their convenience. Another helpful feature of HireVue is coordinating interview schedules, making the process less stressful and time-consuming for both parties.

## Artificial Intelligence

Machine Learning

To identify ideal candidates for a position, supervised ML is applied to provide algorithms with training data and correct answers. These tools then make predictions based on the inputs and new examples from the HR database of job matching. In particular, AI-powered algorithms scan job postings and look into available resumes to reveal suitable candidates. They can also actively search for profiles on social media that contain keywords defined by recruiters. Therefore, contextual search and matching algorithms optimize simultaneous investigation into thousands of resumes. It is important to note that the output is only as good as the inputs, so this technology is prone to implicit bias of developers as well as recruiters.
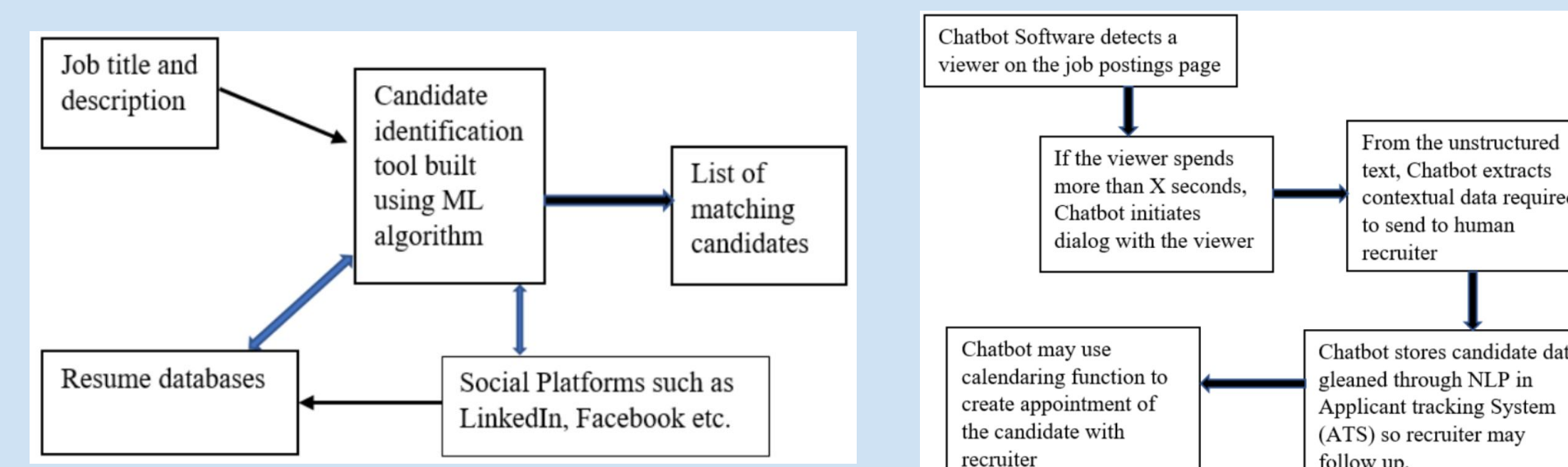
Natural Language Processing

NLP is central to candidate engagement as it enables chatbots, such as Mya, to demonstrate human-like intelligence and communicate with applicants at any stage of recruitment. Their support ranges from answering questions during job ads review to following up frequently after application submission. Indeed, these chatbots not only simplify candidate selection but also maintain their interests in the job and the company. Although chatbots are yet to achieve human conversational skills, a lot of efforts have been put toward enhancing these assistants. For instance, Mya developers created numerous governance structures and carried out rigorous conversation design to address and mitigate unintentional bias arising from their algorithms.

Putting multiple techniques together
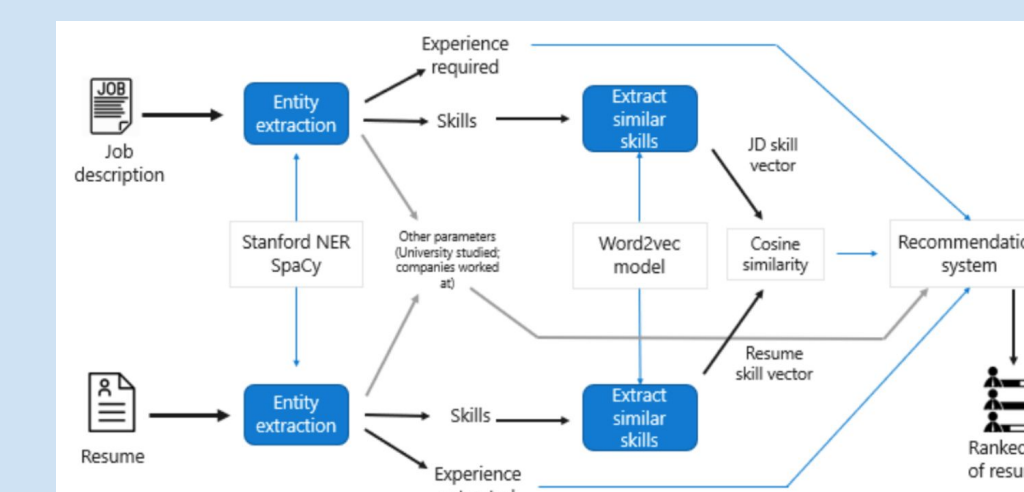
AI is advancing recruiting with a combination of Pattern Recognition and Analysis and Machine Learning. These tools are implemented in conducting, recording, and examining video interviews, by segregating them according to the number of questions or time intervals. As with HireVue, elements such as voice, facial expressions, and body language, are measured and compared among candidates and to current employees of a similar role. Finally, candidates are ranked based on their performance on different criteria of a particular position. Resume screening, which utilizes NER and Word Embedding, is also incorporated in this model. These technologies extract crucial details from both job descriptions (JD) and resumes that would dominantly determine the ranking of a document. Moreover, Word2vec is a 2-layer neural network that processes text and makes predictions of a word based on its adjacent input, and Cosine similarity represents the angle between 2 vectors - a JD and a resume. Together, these AI tools have greatly strengthened recruitment efficiency at every step of the process.

Ethical Concerns

Even though AI-based recruitment has many advantages such as eliminating monotonous tasks, customizing candidate experience, and interpreting numerous human features simultaneously, it is still inaccurate from time to time because of many inherent biases. Due to limited public databases, AI so far is mostly fed with homogenous data of White native English speakers. This might not translate well to other languages and cultures, which systematically puts minority candidates at a disadvantage.

Gender bias is also a problem as the AI industry is currently male-dominated and individuals are likely to translate neutral words in accordance with their gender, resulting in an imbalance between masculine and feminine words. Similarly, algorithms are primarily trained with recognizing Caucasian and do not perform well when it comes to other racial ethnicities.

The discriminatory nature of digitalization leaves us with the question whether we should opt for complete hiring automation or preserve the human aspect of HR.

Future Directions

Going forward, AI will become smarter and more efficient at completing repetitive hiring practices. However, it is unlikely that it will displace human involvement as the personal connection between the HR department and candidates is central to recruitment and selection. Moreover, algorithmic biases ask for human technological expertise and final evaluation before making important decisions.

Some of the steps HR professionals could take include seeking tools trained with neutral and diverse data, suggesting tips for candidates to avoid unnecessary AI detections, placing less weight on irrelevant features such as body language and gazing, and focusing on meaningful answers instead in the interviews. Most importantly, legal guidelines, Equal Employment Opportunity in particular, should be complied with in order to take into account those who are not favored by the algorithm.

References

Fernández-Martínez, C., & Fernández, A. (2020). AI and recruiting software: Ethical and legal implications. *Paladyn, Journal of Behavioral Robotics, 11*(1), 199-216.
HiredScore. Artificial Intelligence. Retrieved December 11, 2020 from https://hiredscore.com/
Hirevue. Platform. Retrieved December 11, 2020 from https://www.hirevue.com/
Kulkarni, S. B., & Che, X. (2019). Intelligent software tools for recruiting. *Journal of International Technology and Information Management, 28*(2), 2-16.
Littler Mendelson, P.C. (2018). *The Litter® Annual Employer Survey.* https://www.littler.com/files/2018_littler_employer_survey.pdf
Mya. Meet Mya. Retrieved December 11, 2020 from https://www.mya.com/
Rana, D. (2018). The Future of HR in the Presence of AI: A Conceptual Study. *The Future of HR in the Presence of AI: A Conceptual Study (November 24, 2018).*
Textio. Augmented writing. Retrieved December 11, 2020 from https://textio.com/