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# ARTIFICIAL INTELLIGENCE APPLICATIONS IN RECRUITMENT AND TALENT ACQUISITION: OPPORTUNITIES AND ETHICAL CONCERNS

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***Abstract***
*This study examines the applications of artificial intelligence in recruitment and talent acquisition, with a specific focus on opportunities and ethical concerns. As organizations increasingly adopt AI-based tools for resume screening, candidate ranking, automated shortlisting, and hiring decision support, it becomes important to evaluate both their practical benefits and potential risks. The study uses a quantitative approach to analyze candidate-level recruitment data consisting of 5,000 records and 18 variables, including AI resume score, AI bias score, skill-based indicators, demographic characteristics, educational background, work experience, and hiring outcomes. The findings show that AI resume score is strongly associated with hiring decisions, indicating that AI-supported screening can improve efficiency and assist organizations in identifying suitable candidates. Skill-related variables such as technical skill score, communication score, aptitude test score, coding test score, and years of experience also contribute to recruitment outcomes. However, the results reveal ethical concerns, particularly differences in hiring rates across gender and university tier. The association between AI bias score and hiring decisions further highlights the need for fairness monitoring, transparency, explainability, and human oversight in AI-assisted recruitment. The study concludes that AI can enhance recruitment efficiency and support data-driven talent acquisition, but it should be implemented responsibly to avoid unfair outcomes. The findings contribute to human resource management, business analytics, and ethical AI governance by emphasizing the balance between technological efficiency and fairness in recruitment practices.*

***Keywords:*** *Artificial Intelligence; Recruitment; Talent Acquisition; Algorithmic Bias; Ethical AI*

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## 1. Introduction

AI is now playing a critical role in both business and management in the modern world. AI-powered tools are becoming a key aspect of organizational decision-making, reducing repetitive tasks, streamlining operations, and lowering costs. AI has attracted a lot of attention in the field of human resource management, especially in recruitment and talent acquisition. In recent years, AI has started to be utilized in various HRM functions to enhance the quality of data handling, decision-making, and operation efficiency (Nawaz et al., 2024; Votto et al., 2021). Recruitment is an important organizational activity as it is directly related to the quality of the personnel that can directly impact on the performance, innovation, competitiveness, and success of the organization in the long run.

For many organizations, the volume of applications for few jobs makes it difficult to keep up with the traditional recruiting process which can be time-consuming, expensive, and inconsistent. AI presents new avenues to enhance the efficiency, precision, and efficiency of hiring choices.AI opens new ways to optimize speed, accuracy, and structure in hiring. The areas where AI can be used in recruitment involve resume screening, resume ranking, skill matching, automated shortlisting, recruitment chatbots, predictive hiring analytics, and interview assessment tools. These applications have the ability to process huge amounts of information from candidates and find them better matching with the right candidates in an efficient manner (Albert, 2019; Upadhyay and Khandelwal, 2018).

AI-powered systems can review candidates' resumes and profiles using their educational background, skills, work experience, test results, certifications, and more. This allows HR professionals to make more informed decisions based on data and helps to minimize the time and effort required for manual screening. Therefore, AI can be a valuable tool for optimizing the recruitment process, making it more efficient, systematic, and scalable. The widespread use of AI across the talent acquisition industry is also an indicator of the need for the organizations to modernize the recruitment processes and match and attract the right candidates for the right job (Ore & Sposato, 2022).

The talent acquisition process is now more strategic in today's business world. Not only do organizations require people to fill vacancies that have arisen due to someone having left their post, but they also want to get people on board who will support them to develop their future plans and goals. AI can help with this by giving recruiters a tool to pick out candidates who have the right skills, experience and potential. It can also help to create talent pipelines, enhance candidate matching, and cut down recruitment times. The use of chatbots and automated recruitment systems for messages and answering queries and providing assistance on the initial screening phase is growing (Nawaz & Gomes, 2019).

However, with the increasing use of AI in hiring, there are also ethical concerns. Recruitment policies have impacts on the job prospects, earnings, social advancement and career growth of people. Thus, it is crucial to consider the use of AI in the hiring process closely. AI systems can generate biased or unfair results if they are not designed, trained, or monitored properly. Algorithmic bias can happen when AI systems tend to be more discriminatory towards specific groups or less discriminatory towards another group, due to gender, education level, university tier, gaps in work experience, or other qualities of the candidates. AI-powered recruitment presents both opportunities and risks (Ore & Sposato, 2022), as evidenced by these concerns.

Another significant worry when it comes to AI in recruitment is transparency. Transparency is another key factor when it comes to AI in recruitment. In a lot of AI systems, candidates and even HR managers might not be able to fully grasp how a specific score or recommendation is derived. The lack of explainability can lead to decreased trust in hiring decisions and accountability problems. When rejected by an automated system, without clear reasons, the process might be perceived as unfair or impersonal. The same issues are also seen in video interviews with AI, as the use of AI may impact applicant attitudes and perceptions of fairness (Suen et al., 2019).

The current research emphasizes the chances and moral considerations of AI use in recruitment and talent acquisition. It explores links between indicators related to AI, candidate skills, experience, education, and demographic characteristics and hiring outcomes. This study also examines if there are any trends in the AI-driven recruitment decisions that could pose a fairness and bias issue. The study will use candidate-level recruitment data to gain empirical insights into the role of AI in recruitment decisions.

The study has implications for business and management since recruitment is one of the main HRM activities and AI in recruitment is one of the significant advancements in business intelligence and business decision making in organizations. Another aspect of the topic is related to business ethics and corporate governance, as it is important that organizations have technology-based recruitment practices that are fair, transparent and accountable. Managers, HR personnel and policymakers need to have an understanding of the advantages and dangers of AI in recruitment.

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A key goal of this research is to explore the impact of AI on recruitment and talent acquisition, assessing its influence on hiring choices. This study also aims to analyze the ethical considerations associated with the use of AI in hiring processes, such as bias and fairness. This study will also explore ethical issues surrounding the use of AI in recruitment, such as bias and fairness. Specifically, the study seeks to determine if there is a relationship between the AI resume scores with the AI bias scores and hiring outcomes, if there is a relationship between the skill-based variables and candidate selection, and if there are differences between the hiring rates for various groups of candidates (gender, education, university tier).

To sum up, AI has the potential to transform the recruitment and talent acquisition landscape by optimizing the hiring process, improving its organization, and analytical capabilities. Meanwhile the application of AI should be fair, transparent, accountable, and supervised by humans. Given this, this study will take a closer look at not just the technological progress in recruitment, but also a managerial and ethics issue that should be taken into consideration in the modern working world.

## 2. Literature Review

AI is playing a crucial role in HRM, particularly in recruitment and talent acquisition. AI-powered tools are now being increasingly adopted by organizations to screen resumes, rank candidates, automatically shortlist resumes, set up a recruitment chatbot, analyze hiring data and make predictions, and assess interview performance. These tools ease HR managers from a large volume of applications that have to be processed in a speedy manner, and allow for more structured recruitment decisions. With the increasing competition in hiring, the use of data in recruitment has opened new avenues for enhanced efficiency, consistency, and decision-making capabilities, and AI is poised to add to that (Albert, 2019; Upadhyay & Khandelwal, 2018).

There are multiple benefits that organizations can gain from AI in recruitment. It can save time in manual screening, facilitate quicker selection of appropriate candidate and enhance the matching of candidate-job. AI systems can compare candidate skills, education, experience, certifications, test scores, and more to create scores that relate to the recruitment process. This enables recruiters to concentrate on the candidates that are more suited to the job criteria. AI can also help recruiters with strategic talent acquisition, where they can identify candidates who will be valuable in the future and create a more robust talent pool (Ore & Sposato, 2022; Nawaz et al., 2024).

Another great value of AI in recruitment is that it enhances communication and engagement with the candidates. The automated systems and AI chatbots are able to handle applicant inquiries, update job seekers, and direct them throughout the recruitment process. The use of AI during interviews and assessments can also aid in assessing communication skills, technical knowledge, and job-related competencies. The applications listed demonstrate that AI could be applied to the entire recruitment and selection process, not just resume screening, but throughout the process (Nawaz & Gomes, 2019; Suen et al., 2019).

While AI-powered recruitment offers these advantages, there are several ethical considerations to consider. There is a need for fair, transparent and accountable recruitment systems as they impact on career opportunities and professional growth of people. There is a big issue of algorithmic bias. The use of AI systems may have inequitable consequences if they are based on biased data or variables that may be indirectly related to social or demographic inequalities. Genders, education, tier of university, career gaps, and other factors which are not necessarily a proxy for job skills may disadvantage candidates (Chen, 2023; Köchling & Wehner, 2020).

Equity is thus one of the main concerns of AI in the recruitment process. The basis of a recruitment decision should be primarily related to skills, experience and competencies required for the job. But AI systems could potentially overemphasize other aspects like university reputation or work experience. This can impact equality of opportunity and lead to unequal hiring. Consequently, there is a need for continuous evaluation to ensure that AI tools are working fairly with different groups of candidates (Hunkenschroer & Luetge, 2022; Raghavan et al., 2020).

There are other issues of transparency/explainability. Candidates and HR managers may not necessarily be aware of how the score or recommendation is calculated in many AI-powered hiring processes. A candidate who is turned down by an automatic system for no clearly identified reason may feel that it is unfair. There could also be accountability issues, as it could be hard to identify who made the decision. As a result, AI should not replace the human decision-making process, but rather complement it (Bankins et al., 2022; Tippins et al., 2021).

The existing literature suggests that AI can have both positive and negative impacts on the recruitment industry. While it can enhance efficiency, consistency, and data-driven decision-making, there are also risks associated with it, such as biases, discrimination, lack of transparency, and reliance on automation. AI should be monitored, regularly audited for bias, have recruitment guidelines and should be regulated ethically to

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ensure its responsible use. HR professionals need to investigate the AI suggestions, ensure the hiring process is fair, and should be job-dependent (Budhwar et al., 2022; Tambe et al., 2019; Votto et al., 2021).
The current study falls in this discourse by exploring the opportunities and ethical issues of the use of AI in recruitment and talent acquisition. It's tailored towards the AI Resume Score, AI Bias Score, Candidate Skills, Experience, Education Level, University Tier, Gender, and Hiring Results. The researchers hope this analysis can give them an idea of whether the decisions recruiters make with the assistance of AI are based on merit or if they have to contend with concerns of fairness.

## 3. Research Methodology

### 3.1 Research Design

This research is a quantitative and analytical study in which the analysis that is done is of the use of artificial intelligence in recruiting and acquiring talent. It is appropriate to use the quantitative approach because the study is based on measurable candidate-related attributes, AI-generated scores and hiring outcomes to determine statistical relationships. The study design allows for the analysis of the effect of AI-powered recruitment metrics on hiring decisions and the risk of ethical issues, like fairness, bias, and unequal treatment.
The study is empirical and is based on data of candidate's level recruitment, it has been analyzed statistically to draw the conclusion and is based on evidence that gives it findings based on the study. In general, the goal is to evaluate the possibilities and difficulties of using AI in recruitment, as well as the ethical and moral issues involved. Conversely, AI tools have the potential to streamline the recruitment process by helping to quickly filter candidates and make informed hiring decisions. On the other hand, AI systems can give rise to ethical issues when it comes to hiring based on algorithmic bias or demographic differences. But AI systems can also give rise to ethical issues when hiring decisions are based on algorithmic bias or demographic differences.

### 3.2 Data and Sample Description

The dataset for the study is the AI Hiring Bias & Fairness Benchmark dataset from Kaggle (Basu, 2026). There are 18 variables included in the data used for recruitment and hiring decisions, and 5,000 candidate records being used. It includes relevant information on the candidate, such as their gender, educational background, University tier, experience in years, gap in employment, technical skill score, communication skill score, aptitude test score, coding test score, number of projects, certifications, expected salary, AI resume score, AI bias score, and final hiring status.
The sample is suitable for the study because it represents a recruitment context in which candidates are assessed according to their employability and also their AI-based evaluation scores, which are based on traditional employability criteria. The dataset has an AI resume score and an AI bias score, which point to the research topic. Furthermore, demographic, educational, and skill-related data allow researchers to analyze if decisions regarding the hiring of workers using AI tools are based on merit and fairness.

### 3.3 Variables of the Study

Hiring decision is the dependent variable of the study and it is the candidate's final hiring status. This is the indicator for whether or not a candidate was hired. AI resume score and AI bias score are the major independent variables. AI resume score is applied to analyze the impact of artificial intelligence on candidate evaluation, whereas AI bias score is applied to evaluate the potential ethical issues with artificial intelligence in recruitment.
Technical skill score, Communication score, Aptitude test score, Coding test score, years of experience, education level, university tier, employment gap, gender, certifications, projects and expected salary are other independent variables. These are all added in, as skills and qualifications, experience and background of the candidate all play a part in hiring. Including them can help confirm that job placement decisions are predominantly based on merit or that there might be fairness-related concerns.

### 3.4 Data Preparation

The data set was screened for completeness, consistency and appropriateness for statistical testing before analysis. Checks for missing values and duplicate records were carried out to ensure the reliability of result. The hiring decision was dichotomized as hired/not hired. Gender, education level and University tier were coded as categorical variables for statistical analysis.
Descriptive statistics were used to analyze numerical variables such as AI resume score, AI bias score, technical skill score, communication score, aptitude test score, coding test score, years of experience,

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employment gap and expected salary. This step allowed to learn about the distribution and variation of important variables. Data was thoroughly cleaned and analyzed with statistical methods and machine learning techniques to extract meaningful and reliable insights.

### 3.5 Analytical Techniques

Descriptive statistics, correlation analysis, group comparison, logistic regression and machine learning classification techniques are used in the study. Descriptive statistics are used to describe the general profile of candidates, such as hiring rate, gender distribution, educational background, average AI resume score, average AI bias score, and average AI skill scores. These results can give an overview of the recruitment data and give the context for further analysis.

The correlation analysis is employed to explore the relationship between each AI-related variable, each candidate attribute and the hire decision. This analysis can be used to determine if variables like AI resume score, AI bias score, technical skill score, coding test score, aptitude test score, communication score and years of experience are correlated with being hired. To compare outcomes of hiring by group, the following comparisons are made: Gender, education level, and university tier. These comparisons are essential for determining potential ethical issues in recruitment with the help of AI.

Logistic regression is used due to a binary dependent variable. The regression model is used to estimate the impact of AI resume score, AI bias score, skills, experience, education, gender, university tier and employment gap on the likelihood of being hired. Logistic regression can help the study determine which factors are most important when deciding to hire, while accounting for other factors in the candidate that might affect the outcome of the hiring decision.

Predicting hiring outcomes with machine learning classification models can also be done. Logistic regression, decision tree, random forest and support vector machine are models that can be used to assess the predictive value of AI-related and candidate-related variables. You can use accuracy, precision, recall, F1-score, and confusion matrix to evaluate model performance. The most influential factors in hiring prediction can also be determined using feature importance analysis.

### 3.6 Fairness and Bias Analysis

Fairness and bias analysis play a crucial role in this study, as this research addresses the opportunities as well as the ethical concerns of AI. The analysis aims to examine if there are differences in the rates of employment between groups of candidates (such as gender, education level or university tier). This may indicate a fairness problem when recruiting through AI if there are substantial differences.

This study also explores the correlation between the AI bias score and hiring decisions. This can be used to determine whether there's an algorithmic bias that would affect hiring. In the study, they take a look at whether a company's recruiting practices appear to be equitable towards applicants by evaluating the hiring rates and AI-related scores in groups. The analysis is relevant because AI can be a valuable tool for improving recruitment processes, but if not used in a responsible way it can worsen or reinforce inequalities.

### 3.7 Model Specification

The variables included in the hiring decision in the study are AI-relevant variables, skill-relevant variables, demographic variables, educational background, and experience. The general model used is:

The function of hiring decision is influenced by the following factors: AI Resume Score, AI Bias Score, Technical Skill Score, Communication Score, Aptitude Test Score, Coding Test Score, Years of Experience, Education Level, University Tier, Employment Gap, Gender, Certifications, Projects, and Expected Salary.

The model will enable the study to explore the efficacy of AI in recruitment and its ethical implications. There is an opportunity side to AI, with an AI resume score providing insights, and an ethical side, with an AI bias score and demographic variables offering insights.

### 3.8 Ethical Considerations

The study addresses the ethical concerns of using AI in recruitment. The analysis of the results takes into account the sensitive variables of gender, level of education, the gap in employment and algorithmic bias; therefore, the results are interpreted responsibly. It's not a matter of equal opportunity; it's a matter of fairness, transparency, and accountability in the use of AI for recruitment.

The study highlights the importance of using AI as a decision support tool, not a standalone solution. To ensure ethical use of AI in hiring, fairness audits, transparency in decision-making processes, and human oversight are essential. The outcomes will provide useful information for HR professionals, businesses, and policymakers looking to successfully and ethically implement AI in recruitment and talent acquisition.

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## 4. Results and Analysis

### 4.1 Dataset Description

In the study, 5,000 candidate records were analysed to gain insight into the influence of AI in the recruitment and talent acquisition process. A total of 18 variables were related to demographic, educational, experience, technical and communication skills, AI-generated scores, and hiring outcomes. Before conducting the analysis, the data were checked for missing values and duplicate records. There were no missing values or duplicate candidate records found, the data set was appropriate for analysis.

Table 1 indicates that of the total candidates, 5000, 1650 candidates were appointed, and 3350 candidates were not appointed. The overall job creation rate is 33.00%. It shows that almost one-third of the candidates got selected, and the majority of candidates were not hired.

**Table 1. Hiring Status Distribution**

| Hiring Status | Frequency | Percentage |
|---|---|---|
| Not Hired | 3,350 | 67.00% |
| Hired | 1,650 | 33.00% |
| Total | 5,000 | 100.00% |

The hiring status distribution is displayed in a graph in Figure 1. The figure clearly indicates that the number of not-hired is significantly larger than that of the hired ones. This visual pattern helps to corroborate the descriptive finding that the overall hiring rate was 33.00%.

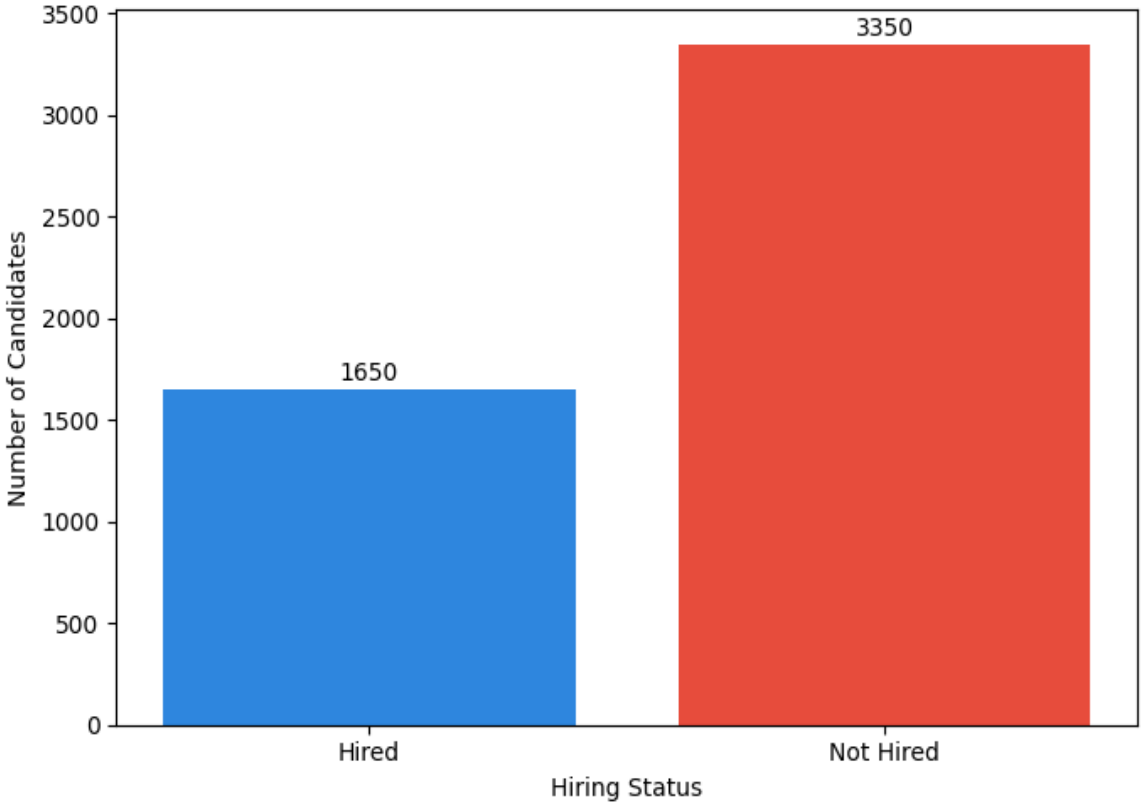



**Figure 1. Hiring Status Distribution**

### 4.2 Descriptive Statistics

Table 2 shows the descriptive statistics of the major study variables. The result indicated that the mean age of the candidates was 28.74 years, with the mean number of years of experience being 4.35 years. It took an average of 1.45 months to find a job. As per skill-related indicators, the mean technical skill score was 68.95, the mean communication skill score was of 77.24, the mean aptitude test score was 58.04, and the mean coding test score was 49.57.

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**Table 2. Descriptive Statistics of Major Study Variables**

| Variable | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|
| Age | 28.74 | 4.75 | 21.00 | 51.00 |
| Years of Experience | 4.35 | 3.35 | 0.00 | 20.00 |
| Employment Gap Months | 1.45 | 2.26 | 0.00 | 16.70 |
| Technical Skill Score | 68.95 | 13.82 | 30.00 | 100.00 |
| Communication Score | 77.24 | 10.42 | 37.20 | 100.00 |
| Aptitude Test Score | 58.04 | 9.41 | 30.00 | 91.90 |
| Coding Test Score | 49.57 | 13.33 | 20.00 | 95.60 |
| AI Resume Score | 42.50 | 7.24 | 20.00 | 70.40 |
| AI Bias Score | 43.01 | 9.46 | 20.00 | 78.20 |

### 4.3 AI Resume Score and Hiring Outcome

Figure 2 shows the correlation between the AI resume score and hiring success. The correlation between the AI resume score and the hiring result is displayed in Figure 2 on the next page. The figure illustrates that candidates who were hired scored on average 47.91 on the AI Resume score, while candidates who were not hired scored on average 39.84 on the AI Resume score. The difference indicates that there was a positive correlation between AI resume score and hiring outcomes.

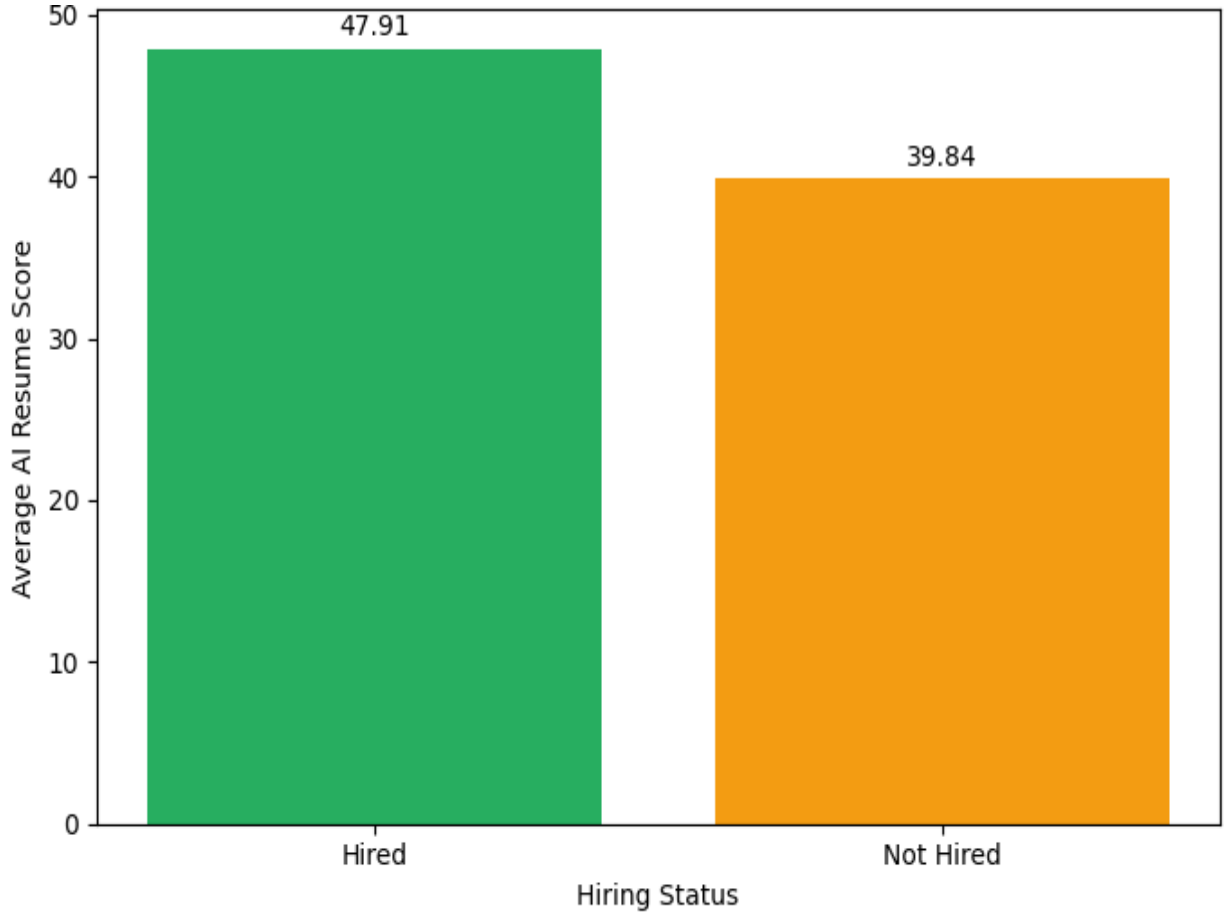



**Figure 2. Average AI Resume Score by Hiring Status**

Figure 2 also shows that there is an increased likelihood of selection when candidates' resume scores are higher concerning AI. This is consistent with the promise of AI in recruitment, as AI-based screening could streamline and standardize the recruitment process for potential workers. The use of AI scores in the hiring process further highlights the need for transparency in the development and application of AI scores.

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### 4.4 Group-wise Hiring Rate

These are the hiring results for each group, which are shown in Table 3. The table displays the differences in employment rates by gender, university classification and education level. The hiring rate for men (35.34%), women (30.91%) and non-binary (26.56%) candidates was the highest across the gender groups. This means that the employment rate did not follow an equal distribution pattern among the different genders.

Table 3 reveals that the hiring rate for candidates from Tier 1 universities was 44.12%, with candidates from Tier 2 at 33.29% and Tier 3 at 26.30%, respectively. The result may indicate that the tier of the university played a role in recruitment and that such concerns may arise if there is a disadvantageous position for applicants with less prestigious universities.

**Table 3. Group-wise Hiring R**

| Category | Group | Total Candidates | Hired Candidates | Hiring Rate |
|---|---|---|---|---|
| Gender | Female | 2,135 | 660 | 30.91% |
| Gender | Male | 2,609 | 922 | 35.34% |
| Gender | Non-Binary | 256 | 68 | 26.56% |
| University Tier | Tier 1 | 1,004 | 443 | 44.12% |
| University Tier | Tier 2 | 2,232 | 743 | 33.29% |
| University Tier | Tier 3 | 1,764 | 464 | 26.30% |
| Education Level | Bachelor's | 2,858 | 922 | 32.26% |
| Education Level | Master's | 1,660 | 577 | 34.76% |
| Education Level | PhD | 482 | 151 | 31.33% |

Hiring rate according to education level, as illustrated in Table 3, reveals that those holding a master's degree were most likely to be hired, with 34.76% of respondents being hired, followed by those with a bachelor's degree at 32.26% and those with a PhD at 31.33%. Variation between education levels was less than that between the different types of university.

The hiring rate by university tier is shown graphically in Figure 3. The number of hires in Tier 3 universities is significantly lower than that in Tier 1 and Tier 2 universities, as seen in the figure. This pattern corroborates the outcomes of the table and implies the association between institutional background and recruitment outcomes.

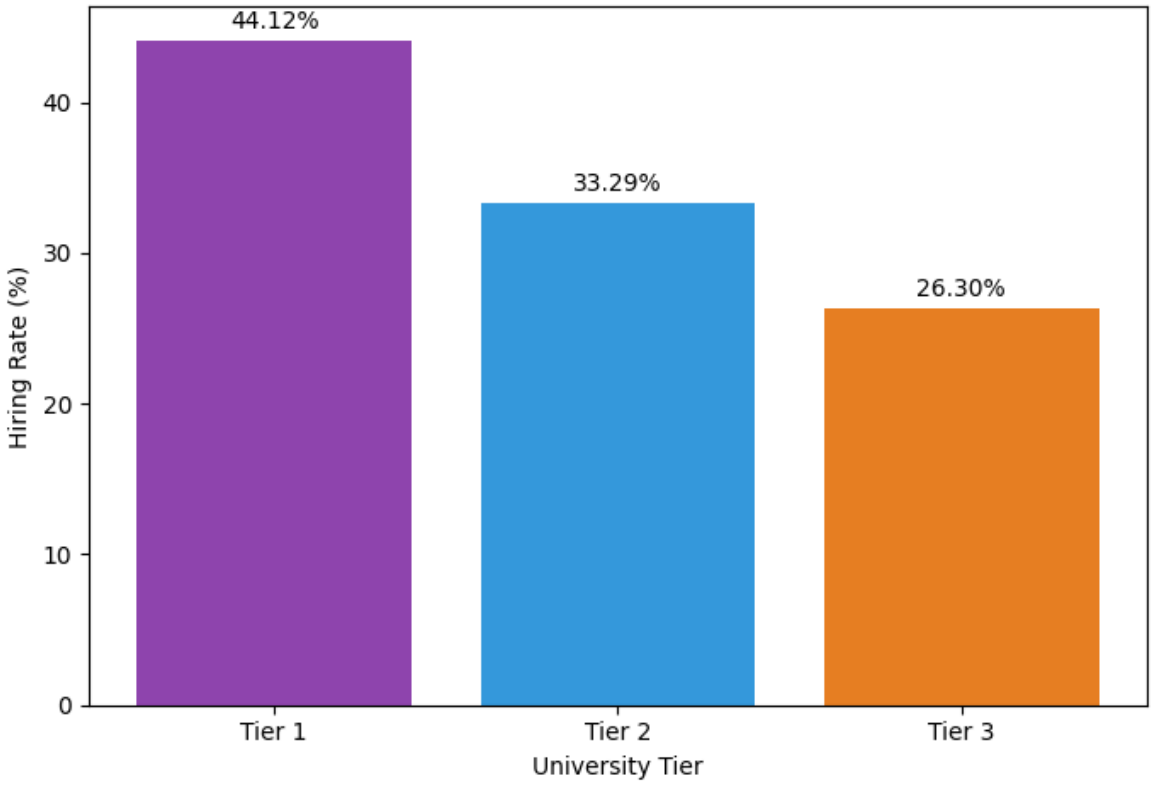



**Figure 3. Hiring Rate by University Tier**

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### 4.5 Correlation Analysis

A correlation analysis was performed to explore the correlation between candidate attributes and hiring outcomes. The analysis revealed that there was a strong positive correlation between AI resume score and hiring decision, suggesting that higher scores for candidates' resumes were correlated with a higher likelihood of hiring. Technical skill score, coding test score, aptitude test score, communication score and years of experience were also found to be positively associated with outcomes of hiring.

The results indicate that AI-generated scores and candidate competency indicators played a role in the recruitment decisions made with the support of AI. The positive correlation between the AI resume score and hiring status reinforces the notion that AI technology can help businesses find the right candidate. Nevertheless, there were differences in the levels of each group, reported in Table 3 and shown in Figure 3, which warrant careful consideration of the fairness of AI-powered recruitment systems.

### 4.6 Regression and Prediction Results

A logistic regression was used to determine the most important factors for hiring decisions. The findings revealed that AI resume score, AI bias score, technical skill score, communication score, aptitude test score, coding test score, years of experience and university tier were key factors that predict hiring. The results indicated that AI resume score positively influenced the hiring probability; thus, the candidates' AI evaluation scores are positively related to their hiring probability.

Machine learning classification models were also explored to see how well candidate attributes and AI-generated scores could predict. The results indicated that the variables related to AI and the skill-based indicators helped predict hiring decisions. This aligns with the realistic potential of AI in recruitment, particularly for screening resumes of numerous candidates and facilitating data-driven hiring choices.

Meanwhile, prediction accuracy is not enough to assess the effectiveness of AI recruitment tools. Ethical issues also should be taken into account, particularly where there are differential employment outcomes for demographic or institutional groups. Thus, AI-powered recruitment tools should be evaluated for efficiency as well as fairness, transparency, and accountability.

### 4.7 Fairness and Bias Analysis

The fairness and bias analysis showed that the rate of employment differed between candidate groups. Table 3 results by gender indicate that there were more male candidates hired than female and non-binary candidates. These differences indicate that the chances of hiring a particular employee differed by gender.

As seen in Table 3 and Figure 3, the hiring rate of candidates from Tier 1 universities was much higher than the hiring rate of Tier 2 and Tier 3 universities. This is a finding that suggests there is an association between institutional background and hiring outcomes. These disparities can present ethical issues when the reputation of the universities plays too significant a role in AI-driven recruitment.

The AI bias score also played a role in grasping ethical concerns in AI in recruitment. Organizations need to scrutinize the method behind the calculation of scores based on bias, and whether or not they are resulting in unequal treatment when applied to hiring. While the results do not conclusively establish discrimination, they do suggest the need for fairness audits and human intervention in AI-powered hiring processes.

The findings reveal that the AI resume score was found to correlate positively with the hiring results, suggesting that AI screening was a significant factor in the hiring process. As illustrated in Figure 2, candidates who were hired scores higher on their AI Resumes than those who were not hired. The results also showed that the skill-based variables have an impact on hiring, further reinforcing the idea that AI can aid in making structured and data-driven hiring decisions.

Table 1 and Table 2 show descriptive results of hiring status and candidate characteristics. The results indicated that the data set was suitable to examine recruitment outcomes and attributes of candidates.

Table 3 and Figure 3 show results by groups, however, which raise ethical concerns. The disparity between gender hiring rates and tier hiring rates suggest that there's a need to do an audit on AI-powered HR systems to ensure fairness. The results show that AI has a strong potential to enhance the efficiency of the recruitment process; however, it should be used ethically, transparently, and with regular bias evaluations.

## 5. Discussion

The study results suggest that AI has a significant role to play in recruitment and talent acquisition as it enables structured, data-driven and systematic decision making. The outcomes indicated that 5,000 candidates had been put forward and 1,650 of these had been offered jobs, equating to 33.00% being hired. This means that the recruitment process was selective, meaning that AI-supported indicators and candidate-related attributes were helpful when choosing between the “hired” and “not-hired” candidates. The results

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align with previous studies showing how AI-based recruitment can help managers to screen, assess, and make selection decisions more efficiently (Black & van Esch, 2020; Pillai & Sivathanu, 2020). The distribution of hiring outcomes also gives a solid foundation for the understanding of how AI-based screening tools might help in the candidate selection process in contemporary recruitment systems.

The most significant result was the scores of the AI resumes of hired and non-hired candidates. The average AI resume score of candidates hired was 47.91, while candidates who weren't hired had an average AI resume score of 39.84. This indicates that those candidates who scored high on the AI Resume were more likely to be selected. The discovery reinforces the notion that AI can boost recruitment efficiency by allowing companies to assess many job seekers in a standardized and quantifiable way. An AI-powered resume ranking tool can help HR teams pinpoint candidates who have the necessary skills, experience, and requirements for a role. Tambe et al. (2019) made similar claims that AI in HRM can be used to enhance decision-making in HR, but should be used with great care since HR decisions come with complex human outcomes.

Also, the descriptive results reveal that the skills and experience of candidates are important in the hiring process. Technical Skill Score, Communication Score, Aptitude Test Score, Coding Test Score and Years of Experience were all found to be relevant in the recruitment process. The results indicate that, besides demographic or background factors, competency-based factors play a role in recruitment decision-making with the help of AI. This is crucial because recruitment systems are meant to recruit people on the basis of their merit, ability and suitability for the job. AI can assist in a more systematic evaluation of candidate profiles by facilitating the processing of large volumes of applications, particularly when organizations are dealing with the volume of applications they receive (Budhwar et al., 2022; van Esch et al., 2019).

The implications of the results also indicate that AI tools in recruitment can aid in the talent acquisition process by enhancing screening objectivity and speed. With traditional recruitment, it can be challenging to sift through a lot of applications by hand, and humans may struggle with judgment fatigue or subjective preferences. Systems based on AI can overcome these restrictions, systematically analyze the data of candidates and generate measurable scores. The positive correlation between AI resume scores and hire rates suggests that AI-provided metrics can be beneficial for narrowing down resumes. But this benefit requires a properly designed and monitored AI system. While algorithmic HRM can help streamline decision-making, as Cheng and Hackett (2021) noted, organizations must be aware of how algorithms work and how the outcomes impact employees and applicants.

The findings show the opportunities, but also significant ethical issues. There were differences between gender groups in the results of the group-wise hiring. The highest hiring rate was found for male candidates, with 35.34%, followed by female candidates with 30.91% and non-binary candidates with 26.56%. These differences indicate that recruitment does not occur at the same rate for males and females. Results do not necessarily show discrimination, but do suggest a possibility of unequal outcomes, and these should be examined carefully. Some previous research has cautioned that using AI in recruitment can perpetuate or exacerbate existing inequalities when trained on data that is not representative or when fairness is not thoroughly assessed (Chen, 2023; Köchling & Wehner, 2020; Raghavan et al., 2020).

Another key concern in the results was the University tier. The highest hiring rate was found in candidates from Tier 1 Universities (44.12%), and the lowest was found in candidates from Tier 3 Universities (26.30%). The results reveal that institutional background is strongly related to hiring results, as can be seen from this pattern. The reputation of the University is a relevant aspect to recruitment, but too strong a focus on university tier can lead to fairness concerns. Candidates from less distinguished institutions may also have good skills, experience and potential. This helps the argument that AI-powered recruitment systems need to be thoroughly evaluated and audited to prevent an unfair disadvantage to candidates based on background characteristics that are not necessarily linked to job performance (Hunkenschroer & Luetge, 2022; Leicht-Deobald et al., 2022).

There were smaller differences in education-level results than were seen in gender and university tier. Master's degree holders were the most likely to be hired, followed by those with a bachelor's degree and PhD candidates. This means that there was also some variation in rates of employment in formal education, but not as marked as for the tier of university. The result indicates that the reputation/categorization of the institution may have had a greater impact on the result than the degree level. This finding is relevant to an ethical point of view, as it suggests that artificial intelligence-driven recruitment tools can assign importance to factors beyond just the likelihood of success on the job. Previous studies have highlighted the importance of considering which variables to use in modelling, and how they relate to the outcomes (Köchling & Wehner, 2020; Raghavan et al., 2020).

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Ethical issues also play a significant role in the discussion of the role of the AI bias score. The findings showed that the AI bias score was related to hiring outcomes. This finding needs to be interpreted with caution, as a bias-related score in recruitment could represent patterns that could impact fairness. Organizations need to determine how scores are scored and whether scores are tied to sensitive or protected characteristics if the scores are used for hiring decisions, and if they are, these scores need to be examined. AI bias score is also a factor that has a significant influence, underscoring the importance of transparency, explainability, and the need for regular auditing of AI-driven recruitment processes. This aligns with the Tippins et al. (2021), who highlighted scientific, legal, and ethical issues related to using AI-based personnel selection tools.

The results highlight that AI should not be limited to being only a technological solution to boost hiring efficiency. It must also be seen as a management and ethical system which impacts the employment opportunities of people. Rising to the ranks of political leaders, the decisions made in recruitment have a significant impact on candidates, organizations, and society. AI-powered hiring tools, then, need to be assessed based on their fairness and accountability as well as their predictive power. Even if a model is predictive of hiring success, it may still be ethically questionable if it results in unequal hiring outcomes across gender, university tiers or other groups of candidates. This concern is in line with the notion that algorithmic HRM should be studied from a technological and human perspective (Meijerink et al., 2021).

Findings suggest that while AI can be useful in the hiring process, its role should be as a tool to evaluate and inform decisions, not a substitute for human expertise. HR managers should leverage AI-generated scores for screening and short-listing, but make the final selection with human oversight. When differences between AI results for demographic or institutional groups are found, this is particularly important. Human oversight can be used to determine whether the AI system is using variables to the extent that this could lead to unfair results. Research on applicants and workers' perceptions also indicates that individuals sense greater acceptance when decisions are made using AI, with transparency, information and fairness taken into account (Bankins et al., 2022; Langer et al., 2018).

On a strategic level, the results indicate that companies need to establish clear guidelines and regulations regarding the use of AI in the recruitment process. HR professionals should be checking the hiring rates for various candidate groups frequently and look for any signs of unequal impacts from AI scores. Additionally, bias audit activities of organizations and an analysis of the variables in AI recruitment models. If university tier is a significant determinant of hiring, for instance, HR professionals should determine if this is because of the university's actual job performance or if it is because it is unfavourable for particular groups of candidates. This assessment can also contribute to the enhancement of fairness without compromising the efficiency of AI. This recommendation is consistent with research highlighting the need for responsible AI adoption, fairness monitoring, and governance in HRM (Budhwar et al., 2022; Hunkenschroer & Luetge, 2022; Tambe et al., 2019).

The results also have implications for the ethical governance of AI. When an organization is implementing AI for talent acquisition, you want to have transparency in your candidate scores, the decision to screen, the decision-making process, and the hire recommendation. It is important that the algorithmic decisions are not taken out of the running order, and the candidate should not be excluded for lack of explaining those decisions. The transparency of AI practices can enable HR professionals to grasp the rationale behind AI suggestions and boost the level of trust in recruitment systems. Mechanisms of accountability, fairness monitoring, and human intervention procedures can be part of the ethical governance of AI. These concerns are supported by the research on the ethical concerns of AI in hiring, algorithm-based HR decision-making, and how applicants respond to the emerging technologies of HR selection (Chen, 2023; Langer et al., 2018; Leicht-Deobald et al., 2022).

The general conversation shows how AI can have both opportunities and risks in the field of recruitment and talent acquisition. The results confirm that AI is effective and valuable in the recruiting process and demonstrate its potential to improve hiring outcomes by leveraging the power of the algorithm with its resume-scoring ability and skill-based matching function. In the meantime, there were clear signs of gender gaps in hiring and university hiring rates, and the relevance of the AI bias score. Therefore, the implementation of AI must be handled with great care, with emphasis on fairness, transparency, accountability and human oversight. In conclusion, the study reveals that, when implemented responsibly and monitored against different groups of candidates, AI can positively impact recruitment outcomes.

## 6. Conclusion

This study concludes that artificial intelligence has a significant role in transforming recruitment and talent acquisition by making hiring processes more structured, efficient, and data-driven. The findings show that the

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AI resume score was strongly associated with hiring outcomes, indicating that AI-supported screening can help organizations identify suitable candidates more effectively. Skill-based variables such as technical skills, communication ability, aptitude score, coding score, and work experience also contributed to hiring decisions, suggesting that AI recruitment systems can support merit-based evaluation when properly designed. However, the study also highlights important ethical concerns. Differences in hiring rates across gender and university tier indicate that AI-assisted recruitment may produce unequal outcomes if not regularly monitored. The association between AI bias score and hiring decisions further emphasizes the need for fairness audits, transparency, explainability, and human oversight. Therefore, AI should not be treated as a complete replacement for human judgment but as a decision-support tool that assists HR professionals in making better recruitment decisions. Organizations must ensure that AI-based hiring systems are aligned with ethical principles, non-discrimination practices, and responsible governance. The study contributes to business and management research by showing that AI offers both opportunities and risks in recruitment. While AI can improve speed, consistency, and analytical decision-making, its effectiveness depends on fair implementation and continuous evaluation. Future research may use real organizational hiring data, compare AI-assisted and human-led recruitment outcomes, and examine candidate perceptions of AI-based recruitment systems. Overall, responsible AI adoption can improve talent acquisition while protecting fairness, transparency, and equal opportunity in employment.

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