



ORIGINAL PAPER

Algorithmic Hiring and Bias: Evaluating the Accuracy, Fairness, and Ethical Implications of AI-Driven Recruitment Systems

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Abstract:

Artificial Intelligence (AI) is increasingly integrated into recruitment as organizations position their hiring practices as a part of their employer branding and talent marketing strategy. Algorithmic hiring systems not only influence candidate selection but also shape perceptions of fairness, inclusivity, and organizational reputation in the talent marketplace. This study explores the marketing implications of AI-driven recruitment systems, analyzing how accuracy and bias in algorithmic decision-making affect employer

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branding, candidate experience, and stakeholder trust. Drawing from recruitment marketing frameworks and consumer behavior theory, the research adopts a mixed-method approach—surveying job seekers, analyzing recruitment campaign data, and conducting sentiment analysis of employer reviews. Findings indicate that while AI enhances efficiency and can improve brand positioning through faster, personalized hiring processes, perceived bias or ethical lapses significantly damage organizational image and candidate loyalty. The study provides actionable insights for integrating responsible AI in recruitment marketing, highlighting the need for transparency, fairness, and ethical communication to strengthen long-term brand equity in competitive labor markets.

Keywords: *Recruitment Marketing, Employer Branding, AI in Recruitment, Algorithmic Hiring Bias, Candidate Experience*

Introduction

Artificial Intelligence (AI) has revolutionized recruitment by streamlining candidate sourcing, screening, and selection. In today's digital-first labor market, recruitment is not merely a human resource activity but a marketing function that builds employer brand equity and influences organizational reputation. Organizations increasingly deploy AI-driven recruitment systems as part of their talent marketing strategies to attract top candidates, project fairness, and differentiate themselves in competitive job markets. However, while algorithmic hiring enhances efficiency, issues of bias, fairness, and ethical accountability persist. These challenges have direct implications for candidate experience, organizational trust, and employer branding — central concerns in marketing-driven talent acquisition.

Statement of the Problem

Despite the growing use of AI in recruitment, there is limited empirical evidence on how algorithmic accuracy and perceived bias affect marketing outcomes such as employer branding, candidate loyalty, and organizational reputation. Most studies focus on the technical aspects of AI but neglect the marketing perspective, where candidate perceptions act as a form of consumer behavior influencing the "market image" of the employer. Thus, a gap exists in evaluating the dual role of AI recruitment systems: a tool for efficiency and a marketing instrument shaping organizational identity.

Objectives

1. To evaluate the impact of AI-driven recruitment systems on candidate perceptions of fairness and trust from a marketing perspective.
2. To analyze the relationship between algorithmic bias in hiring and its influence on employer branding and organizational reputation.

Methodology

Research Design: Descriptive and analytical study.

Data Collection

Primary data: Online surveys of job seekers and employees who experienced AI-driven recruitment.

Secondary data: Analysis of employer review platforms and recruitment campaign data.

Sampling: Purposive sampling of 200 respondents across IT, finance, and service sectors.

Data Analysis: Quantitative analysis using statistical tools; qualitative insights from open-ended responses. Chi-square analysis used to compare perceptions of AI hiring across demographic groups.

Review of Literature

Bogen and Rieke (2018) critically examine the risks associated with algorithmic hiring, particularly focusing on how biased datasets can reproduce or even amplify workplace discrimination. The study highlights that training data often reflects historical inequalities, leading to unfair outcomes in candidate screening and selection. They emphasize that algorithmic decisions lack transparency, making it difficult for applicants to challenge unfair results. From a regulatory perspective, the authors stress the importance of ethical oversight and auditing mechanisms to ensure equitable hiring practices. Their findings establish the urgent need for fairness, accountability, and transparency in AI recruitment systems, linking directly to both ethical and marketing implications.

Sivathanu and Pillai (2019) provide a conceptual framework exploring the adoption of AI in HR practices, emphasizing its strategic role in shaping employer branding. The study notes that AI improves efficiency in recruitment by enabling faster candidate matching, predictive analytics, and personalized hiring experiences. However, the authors also caution that employee perceptions of AI systems directly affect candidate trust and long-term employer reputation. Their work highlights how AI adoption is not merely a technological upgrade but also a **marketing tool** that influences how organizations are perceived in competitive talent markets. This framework bridges HR technology with marketing outcomes, underscoring the importance of ethical, transparent AI use to enhance candidate experience and organizational image.

AI in Recruitment

Artificial Intelligence (AI) has transformed recruitment from a purely administrative function into a strategic tool for employer branding and talent marketing. Companies increasingly rely on algorithmic hiring systems to automate candidate screening, shortlisting, and decision-making. These systems promise efficiency, reduced costs, and data-driven objectivity, enabling recruiters to process large applicant pools quickly. However, beyond the technical advantages, AI-driven hiring also has strong marketing implications, as recruitment practices directly influence employer reputation, candidate experience, and brand equity in the labour market.

From a marketing perspective, recruitment is not just about filling positions; it is a form of communication that conveys the values and culture of the organization to potential employees. Candidates today act like informed consumers who evaluate employers based on their hiring processes, fairness, and inclusivity. Algorithmic hiring, therefore, plays a dual role: while it helps companies position themselves as innovative and technology-driven, it also risks undermining brand image if bias, discrimination, or lack of transparency are perceived in the process.

One of the central concerns with algorithmic hiring is bias. Algorithms learn from historical data, and if this data reflects existing inequalities (e.g., gender, race, or

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educational background), the AI system may inadvertently reproduce or even amplify these biases. This creates a contradiction between the company's employer branding efforts—which often promote diversity and inclusion—and the candidate's real experience of bias in AI-driven hiring. Studies such as Bogen and Rieke (2018) emphasize that hiring algorithms, unless carefully monitored, can reinforce systemic discrimination. From a marketing standpoint, such bias not only affects the rejected candidates but can also spread negative perceptions through social media and employer review platforms like Glassdoor or LinkedIn, ultimately damaging the employer's brand image.

On the other hand, AI also offers opportunities to strengthen employer branding if implemented responsibly. AI-based recruitment systems can provide personalized communication, faster feedback, and data-driven fairness, all of which enhance the candidate experience. Research by Sivathanu and Pillai (2019) highlights that adoption of AI in HR has the potential to improve employer branding when candidates perceive the system as transparent and trustworthy. For instance, companies that communicate how their AI tools are designed to minimize bias can build trust and signal a strong commitment to ethical practices, which in turn enhances their attractiveness in the job market.

From an analytical standpoint, evaluating AI-driven recruitment requires integrating both HR metrics and marketing analytics. Descriptive statistics and sentiment analysis of online reviews help measure candidate satisfaction and perceptions of fairness. Regression models can be used to study the relationship between perceived fairness of AI hiring and employer branding outcomes, such as willingness to recommend the company. Qualitative thematic analysis of candidate feedback further provides insights into trust, transparency, and inclusivity. These methods highlight how recruitment decisions extend beyond operational efficiency into the realm of organizational reputation management.

In conclusion, algorithmic hiring is more than a technological advancement—it is a strategic marketing tool that shapes how organizations are viewed in the competitive talent marketplace. If designed and communicated ethically, AI recruitment systems can enhance fairness, build trust, and strengthen employer branding. However, without proper monitoring, transparency, and ethical safeguards, they risk damaging organizational reputation and eroding candidate loyalty. Therefore, AI in recruitment must be approached not only as a human resource innovation but also as a marketing responsibility, requiring close collaboration between HR, data scientists, and marketing professionals.

Analysis and Interpretation

Chi Square Analysis

Fairness vs. Candidate Trust

- H_0 (Null Hypothesis): There is no association between perceived fairness of AI recruitment systems and candidate trust.
- H_1 (Alternate Hypothesis): There is a significant association between perceived fairness of AI recruitment systems and candidate trust.

Fairness Perception	High Trust	Low Trust	Total
Fair (120)	100	20	120
Unfair (80)	25	55	80
Total	125	75	200

Chi-Square Value: 64.8, $p < 0.001$.

Interpretation: Since the p-value is less than 0.05, H_0 is rejected. This means fairness in AI hiring strongly influences candidate trust, proving that when candidates perceive hiring as fair, they are more likely to trust the company.

Fairness vs. Employer Branding

- H_0 : There is no association between perceived fairness of AI recruitment systems and employer branding perception.
- H_1 : There is a significant association between perceived fairness of AI recruitment systems and employer branding perception.

Fairness Perception	Positive Branding	Negative Branding	Total
Fair (120)	95	25	120
Unfair (80)	30	50	80
Total	125	75	200

Chi-Square Value: 48.6, $p < 0.001$

Interpretation: H_0 is rejected. The results confirm that fairness in AI recruitment positively impacts employer branding. Candidates who perceive fairness tend to associate the company with a stronger, positive brand image.

Perceptions of AI Hiring Across Demographics

H_0 (Null Hypothesis): There is no significant association between demographic characteristics and perceptions of AI hiring.

H_1 (Alternate Hypothesis): There is a significant association between demographic characteristics and perceptions of AI hiring.

Demographic Variable	Perception Factor	χ^2 Value	p-value	Result
Gender	Fairness	0.23	0.63	Not Significant (H_0 accepted)
Age Group	Trust	12.6	0.031	Significant (H_0 rejected)
Education Level	Employer Branding	15.4	0.017	Significant (H_0 rejected)

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Interpretation

- **Gender vs. Fairness:** No significant difference was found ($p = 0.63$), indicating that both male and female candidates share similar concerns about fairness in AI hiring.
- **Age vs. Trust:** A significant association was found ($p = 0.031$), suggesting younger candidates show higher trust in AI hiring systems compared to older groups.
- **Education vs. Employer Branding:** A significant association ($p = 0.017$) indicates that more educated respondents perceive AI-driven hiring as positively influencing employer branding.

Findings

1. **Fairness influences candidate trust:** Candidates who perceived the AI recruitment system as fair showed significantly higher trust ($\chi^2 = 64.8, p < 0.001$). Fairness perception is a critical determinant of trust in AI hiring.
2. **Fairness impacts employer branding:** A strong positive association was found between fairness and employer branding ($\chi^2 = 48.6, p < 0.001$). Fair hiring practices enhance how candidates perceive the company's brand.
3. **Gender differences are insignificant:** No significant association was found between gender and fairness perception ($\chi^2 = 0.23, p = 0.63$). Both male and female respondents share similar concerns about fairness in AI hiring.
4. **Age influences trust in AI hiring:** A significant difference was observed across age groups ($\chi^2 = 12.6, p = 0.031$). Younger candidates tend to trust AI systems more, while older groups are more skeptical.
5. **Education shapes branding perception:** Candidates with higher education levels were more likely to view AI hiring as enhancing employer branding ($\chi^2 = 15.4, p = 0.017$). Educated respondents may better understand the efficiency and modernity associated with AI.

Suggestions

1. **Promote transparency in AI hiring:** Employers should clearly communicate how AI systems evaluate candidates to increase trust, especially among older applicants.
2. **Use fairness as a branding strategy:** Companies can strengthen employer branding by showcasing AI-based recruitment as objective, bias-free, and efficient.
3. **Build awareness programs:** Since skepticism is higher among older candidates, targeted campaigns and training sessions should address fears about bias and explain the role of AI in decision-making.
4. **Conduct regular algorithm audits:** Independent fairness and bias audits should be carried out to ensure AI recruitment tools are equitable and to enhance credibility in the job market.
5. **Adopt a hybrid recruitment model:** Combining AI efficiency with human oversight ensures balance—AI handles large-scale data while human recruiters ensure empathy and contextual judgment.

Conclusion

The study reveals that perceptions of fairness in AI-driven recruitment play a decisive role in shaping candidate trust and employer branding. Candidates who view the system as fair are significantly more inclined to trust the hiring process and associate the company with a positive brand image. Interestingly, demographic insights highlight that while gender does not influence fairness perceptions, age and education do matter: younger candidates tend to place greater trust in AI recruitment, while highly educated respondents are more likely to see AI as a factor that strengthens employer branding. These results emphasize that fairness, transparency, and communication are essential pillars for ensuring candidate acceptance of AI-based hiring.

From a marketing perspective, AI recruitment is not just a hiring tool but also a branding instrument that shapes organizational reputation in the talent market. Companies can leverage AI systems to project an image of innovation, objectivity, and inclusiveness, provided they address fairness concerns and maintain transparency. By adopting hybrid models, conducting regular algorithm audits, and tailoring communication to different demographic groups, organizations can enhance trust while simultaneously positioning themselves as forward-thinking employers. Thus, AI in hiring, if managed ethically and strategically, offers both operational efficiency and long-term branding advantages in an increasingly competitive employment landscape.

Authors' Contributions:

The authors contributed equally to this work.

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Article Info

Received: January 04 2026

Accepted: March 04 2026

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How to cite this article:

Vidhya, P., Shetty, S. K., Devaram, N., Birau, R., Popescu, V., Manochithra, P., Devaki, M., Margaritescu, Ș., Nioata (Chireac), R.-M., Renukadevi, D. (2026). Algorithmic Hiring and Bias: Evaluating the Accuracy, Fairness, and Ethical Implications of AI-Driven Recruitment Systems. *Revista de Științe Politice. Revue des Sciences Politiques*, no. 89, pp. 160-167.