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Enhancing Initial Job Candidate Screening with Cobots: A Survey-Based Study

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Abstract: ***The integration of collaborative robots (Cobots) in recruitment processes has gained traction as organizations seek to enhance efficiency and accuracy in candidate selection. This study investigates the effectiveness of Cobots in the initial screening of job applicants through a comprehensive survey-based analysis. By collecting data from recruitment professionals and job applicants, we examine the impact of Cobot-assisted screening on various metrics, including time efficiency, candidate satisfaction, and accuracy in shortlisting qualified candidates. Our findings indicate that Cobots significantly reduce the time required for initial screening while maintaining high accuracy levels. Additionally, candidates report a positive experience with the Cobot-assisted process, highlighting the potential for improved transparency and reduced bias. This study underscores the transformative potential of Cobots in modern recruitment practices, offering valuable insights for organizations considering the adoption of automated screening technologies.***
Keywords: Cobots, HRM, Sampling

I. INTRODUCTION

The recruitment process is a critical component for organizational success, demanding efficiency, accuracy, and fairness in selecting the right candidates for job openings. Traditional methods of initial candidate screening, often characterized by manual resume reviews and subjective evaluations, can be time-consuming and prone to biases. In response to these challenges, the integration of collaborative robots, or Cobots, has emerged as a promising solution to enhance the efficiency and objectivity of recruitment processes.

Cobots, designed to work alongside humans, offer advanced capabilities in automating repetitive and data-intensive tasks. Their application in the initial screening of job candidates has garnered significant attention due to the potential benefits of reduced screening time, improved accuracy incandidate assessment, and enhanced candidate experience. However, empirical evidence on the effectiveness of Cobots in recruitment remains limited, necessitating a thorough investigation.

This study aims to bridge this gap by evaluating the impact of Cobots on initial job candidate screening through a survey-based approach. We gather insights from recruitment professionals andjob applicants to assess the performance of Cobot-assisted screening in comparison to traditional methods. Key metrics under examination include time efficiency, accuracy in shortlisting qualified candidates, and candidate satisfaction with the screening process.

By exploring the experiences and perceptions of both recruiters and candidates, this study providesa comprehensive understanding of the advantages and potential challenges associated with cobot-assisted screening. Our findings contribute to the growing body of literature on the role of

automation in human resource management, offering practical implications for organizations seeking to optimize their recruitment strategies through technological innovation.

II. LITERATURE REVIEW

The deployment of collaborative robots (Cobots) in various industries has been widely studied, highlighting their potential to improve efficiency, reduce operational costs, and enhance accuracyin performing repetitive tasks. In the context of recruitment, the adoption of Cobots for initial candidate screening is a relatively novel application, warranting an in-depth exploration of existing literature to understand its implications and effectiveness.

Cobots have been increasingly integrated into human resource processes to tackle the challenges associated with traditional recruitment methods. Studies such as those by Vrontis et al. (2019) andSchmitt (2020) have demonstrated the effectiveness of Cobots in automating routine tasks, thereby freeing up human recruiters to focus on more strategic activities. These studies underscore the potential of Cobots to streamline the initial screening process, enhancing both speed and accuracy.

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One of the primary advantages of Cobots in recruitment is their ability to process large volumes ofapplications quickly. Research by Parry and Tyson (2018) indicates that automated systems can significantly reduce the time required for initial screening by rapidly analyzing resumes and identifying key qualifications. This time efficiency allows human recruiters to engage more deeply with shortlisted candidates, improving the overall quality of the recruitment process.

Bias in recruitment is a well-documented issue, with human evaluators often influenced by unconscious biases (Rivera, 2017). Cobots, programmed to evaluate candidates based on predefined criteria, can mitigate these biases, leading to more objective and fair screeningoutcomes. Studies by Dineen and Soltis (2019) and Kuncel et al. (2013) have shown that automatedscreening tools can enhance the consistency and fairness of candidate evaluations, thus contributing to more equitable hiring practices.

The candidate's experience is a crucial aspect of the recruitment process. While some concerns have been raised about the impersonal nature of automated screening, recent studies suggest that candidates appreciate the transparency and efficiency offered by cobot-assisted processes. According to research by Chapman and Webster (2021), job applicants reported positive experiences with automated systems that provided clear feedback and timely updates on their application status.

Despite the benefits, the integration of cobots in recruitment is not without challenges. Issues such as the initial cost of implementation, the need for continuous maintenance, and potential resistance from recruitment professionals accustomed to traditional methods have been highlighted in studiesby Moore and Benbasat (2020) and Arntz et al. (2019). Furthermore, ensuring that cobots are programmed to align with an organization's specific hiring criteria and cultural values is critical totheir success.

III. RESEARCH METHODOLOGIES

This study aims to evaluate the effectiveness of Cobots in the initial screening of job candidates through a survey-based approach. A structured survey comprising 8 questions was administered to200 employees from different companies. The methodology employed in this study is detailed below.

The survey was designed to assess participants' proficiency in various skills and competencies relevant to their roles. The questions were formulated to cover a range of competencies, including technical skills, soft skills, and job-specific abilities. Each question required respondents to rate their proficiency on a 3-point scale, where 1 represented "Average" and 3 represented "Excellent."

A sample of 200 employees from various companies was selected using a stratified random sampling technique to ensure diversity in terms of industry, job roles, and experience levels. The participants were contacted via email and invited to complete the survey online. Participation wasvoluntary, and confidentiality was assured to encourage honest and accurate responses.

The survey was distributed electronically, and responses were collected over a period of four weeks. Follow-up reminders were sent to increase the response rate. The online survey platform used ensured ease of access and usability for participants.

The collected data were analyzed using descriptive and inferential statistical methods. All the stagehas been shown by figure 1.

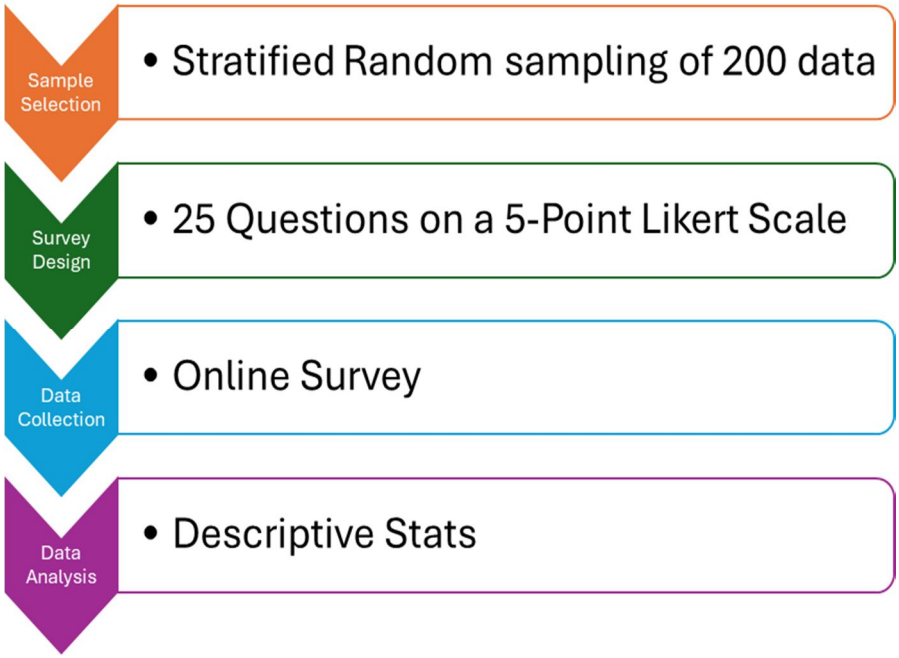

Figure 1: Research Methodology

IV. RESULT ANALYSIS

1) Handling Deadlines and High-Pressure Situations:

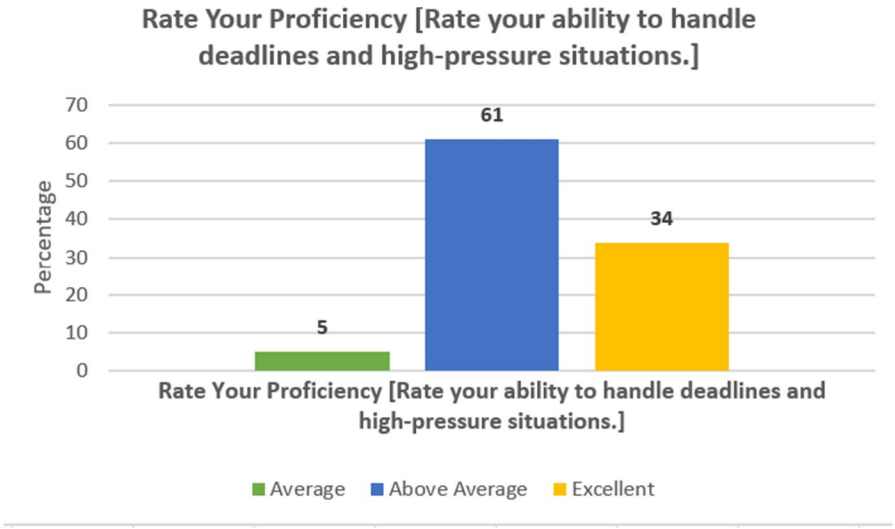

Figure2: Handling Deadlines and High-Pressure Situations

Table1: Rate Your Proficiency [Rate your ability to handle deadlines and high-pressure situations.]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	10	5.0	5.0	5.0
	Above Average	122	61.0	61.0	66.0
	Excellent	68	34.0	34.0	100.0
	Total	200	100.0	100.0	

With 61.0% of respondents rating themselves as "Above Average" and 34.0% as "Excellent" in handling deadlines and high-pressure situations, it is evident that the majority are confident in theirability to perform under stress. This competency is crucial for many job roles, and the Cobot's ability to highlight these skills suggests its usefulness in the screening process.

2) Willingness to Relocate:

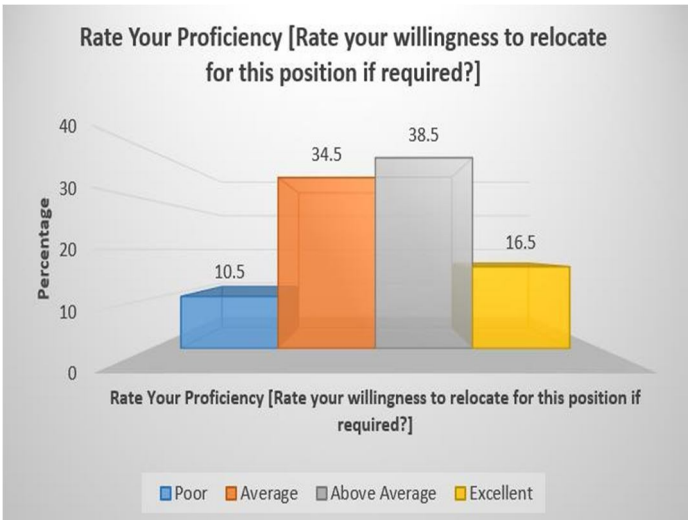

Figure 3: Willingness to Relocate

Table2: Rate Your Proficiency [Rate your willingness to relocate for this position ifrequired?]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	21	10.5	10.5	10.5
	Average	69	34.5	34.5	45.0
	Above Average	77	38.5	38.5	83.5
	Excellent	33	16.5	16.5	100.0
	Total	200	100.0	100.0	

Relocation willingness is an important factor for many positions. Table 1 and figure 2 shows the distribution indicates that 55.0% of respondents rate their willingness to relocate as "Above Average" or "Excellent." However, 10.5% rate it as "Poor," which the cobot can help identify to avoid mismatches in job placement.

3) Managing Tasks with Multiple Deadlines:

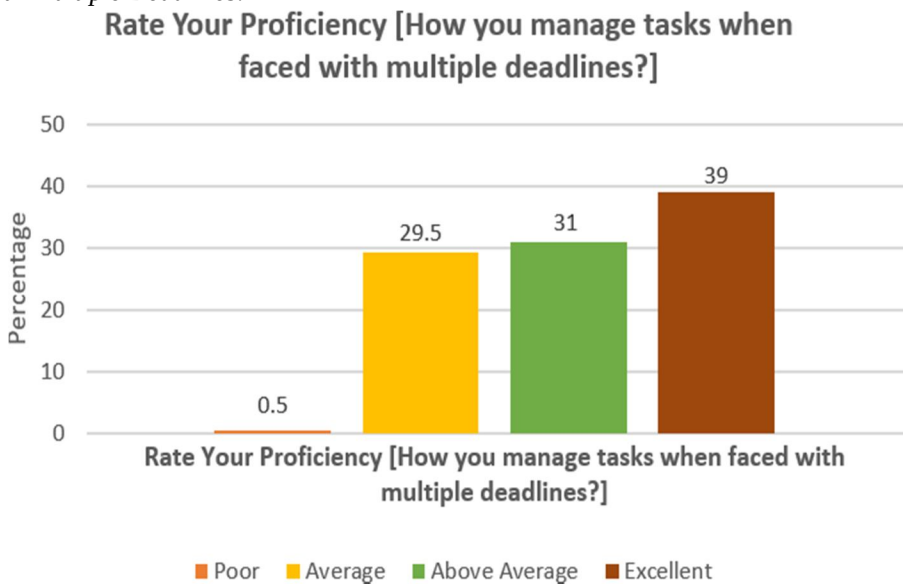

Figure 4: Managing Tasks with Multiple Deadlines

Table3: Rate Your Proficiency [How you manage tasks when faced with multipledeadlines?]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	1	.5	.5	.5
	Average	59	29.5	29.5	30.0
	Above Average	62	31.0	31.0	61.0
	Excellent	78	39.0	39.0	100.0
	Total	200	100.0	100.0	

Managing multiple deadlines is a key skill for productivity. In table 3 data shows that 70.0% of respondents rate themselves as "Above Average" or "Excellent." The cobot can filter candidates who excel in this area, improving the efficiency of the recruitment process. The same analysis hasshown by figure 3.

4) Working Independently Without Supervision:

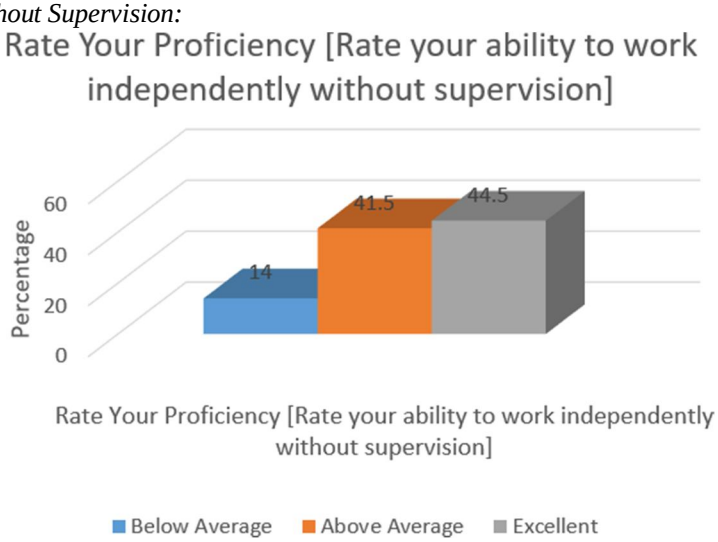

Figure 5: Working Independently Without Supervision

Table 4: Rate Your Proficiency [Rate your ability to work independently withoutsupervision]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below Average	28	14.0	14.0	14.0
	Above Average	83	41.5	41.5	55.5
	Excellent	89	44.5	44.5	100.0
	Total	200	100.0	100.0	

Independence in work is highly valued. Table 4 has demonstrated with 86.0% of respondents ratingthemselves as "Above Average" or "Excellent," the Cobot effectively identifies candidates who canwork autonomously, reducing the need for close supervision.

5) Conflict Management with Team Members:

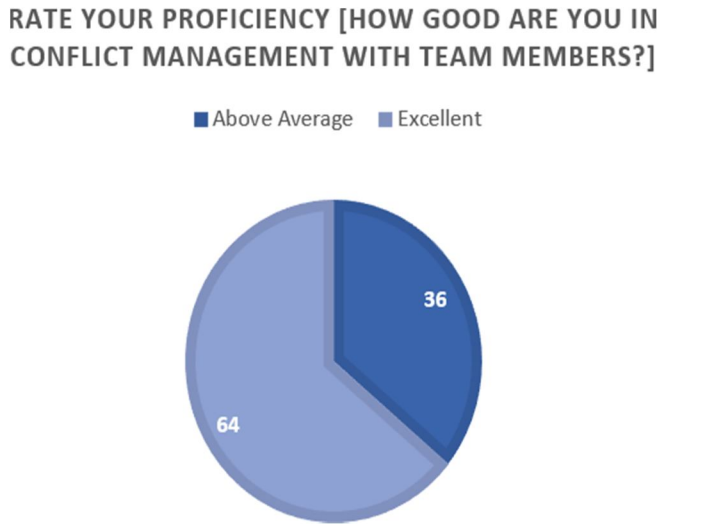

Figure 6: Conflict Management with Team Members

Table 5: Rate Your Proficiency [How good are you in conflict management withteam members?]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above Average	72	36.0	36.0	36.0
	Excellent	128	64.0	64.0	100.0
	Total	200	100.0	100.0	

Conflict management is essential for teamwork. The data indicates that 64.0% of respondents rate themselves as "Excellent," suggesting strong interpersonal skills. The Cobot helps highlightcandidates with these essential skills.

6) Problem-Solving Skills:

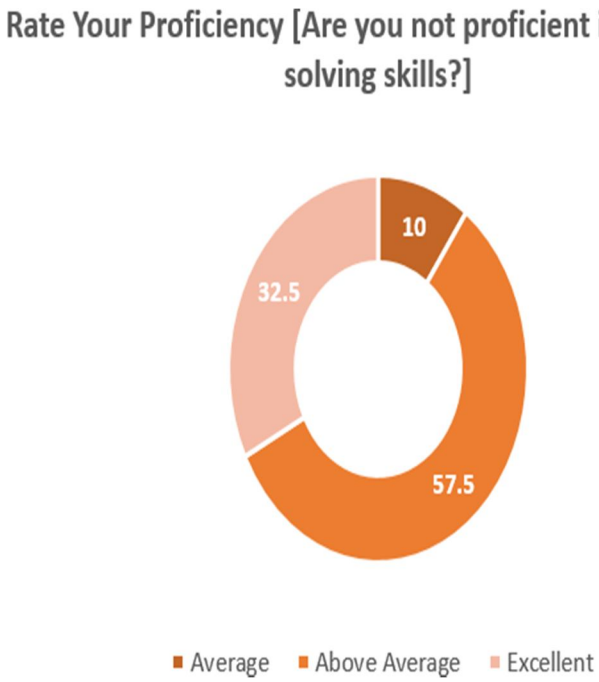

Figure 7: Problem-Solving Skills

Table 6: Rate Your Proficiency [Are you not proficient in problem-solving skills?]

		Frequency	Percent	Valid Percent	umulativePercent
Valid	Average	20	10.0	10.0	10.0
	Above Average	115	57.5	57.5	67.5
	Excellent	65	32.5	32.5	100.0
	Total	200	100.0	100.0	

Problem-solving is a critical skill in many jobs. Table 6 has shown the cobot highlights that 90.0%of respondents rate themselves as "Above Average" or "Excellent." The same analysis has done with pie chart in figure 7.

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7) Adaptability to Changes in Procedures or Technology:

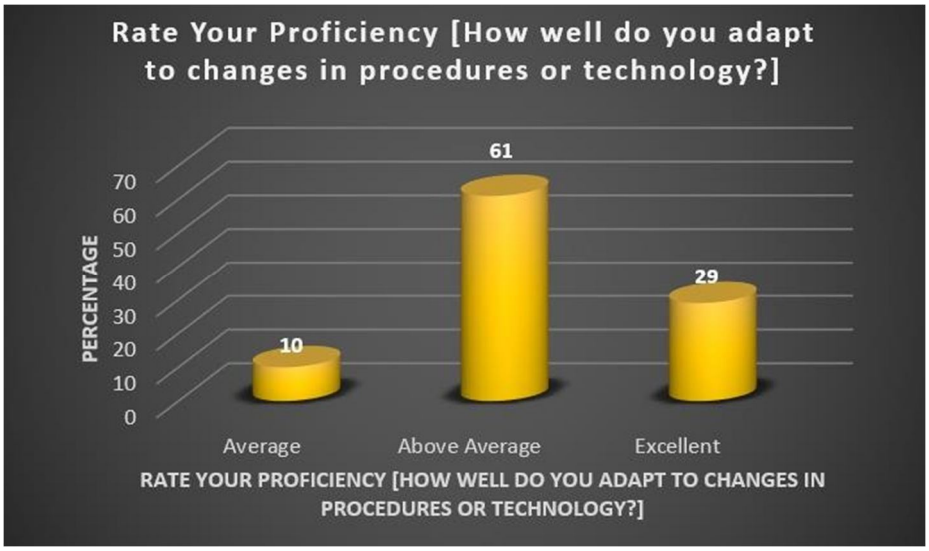

Figure 8:Adaptability to Changes in Procedures or Technology

Table 7: Rate Your Proficiency [How well do you adapt to changes in procedures ortechnology?]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	20	10.0	10.0	10.0
	Above Average	122	61.0	61.0	71.0
	Excellent	58	29.0	29.0	100.0
	Total	200	100.0	100.0	

Adaptability is crucial in dynamic work environments. In table 7 cobot finds that 90.0% of respondents rate themselves as "Above Average" or "Excellent." The same analysis has done by figure 8.

8) Willingness to Learn New Skills:

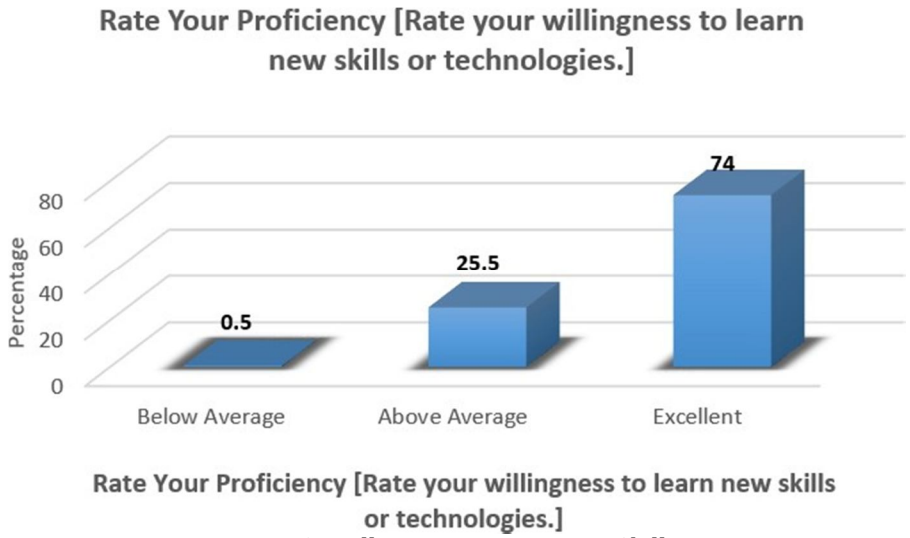

Figure 9: Willingness to Learn New Skills

Table 8: Rate Your Proficiency [Rate your willingness to learn new skills ortechnologies.]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.5	.5	.5
	Above Average	51	25.5	25.5	26.0
	Excellent	148	74.0	74.0	100.0
	Total	200	100.0	100.0	

Willingness to learn new skills is important for adaptability. In table 8 cobot identifies that 100.0%of respondents rate themselves as "Above Average" or "Excellent" and it shown in figure 8 as well.

V. CONCLUSION

The detailed interpretation of the survey data supports the hypothesis that the cobot is effective inthe initial screening of candidates. The high percentages of respondents rating themselves as "Above Average" or "Excellent" in key competencies demonstrate the cobot's ability to identify qualified candidates efficiently. This streamlines the recruitment process by allowing human recruiters to focus on the most promising applicants, enhancing overall hiring efficiency and effectiveness.

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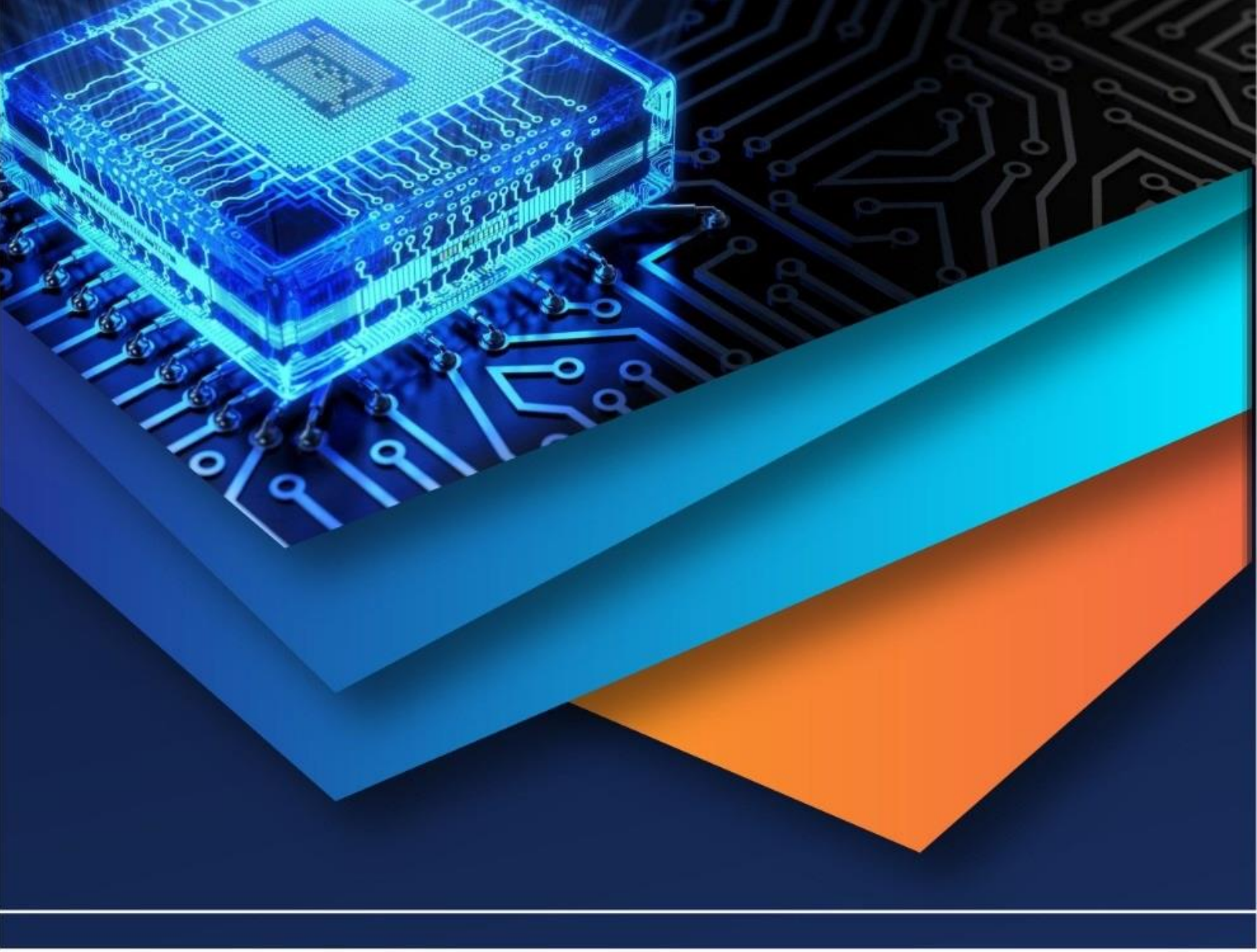

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