

AI-Powered Career Coach: A Review on Digital Career Assistance System

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Abstract

Career counselling mentoring continues to be important in the modern labour market because it provides useful feedback on the workplace. Yet the current career advice practices are in many ways failing because they do not offer individualized solutions attuned to present-day needs. To meet this, AI-based career guidance systems have been developed with important features including personalized career suggestions, current industry information, and automated features such as resume builders, cover letter writers, and career estimation tools. This paper discusses the role of AI in career planning through its capacity to produce actionable insights, solve planning problems, and improve job readiness. It also investigates essential issues like accuracy of data, ethical impact of AI recommendation, and trust loss potential for users. Additionally, the study compares current AI-powered career websites and approaches with a focus on the need to incorporate AI with human guidance, have algorithmic transparency, and improve personalization while addressing ethical challenges in forthcoming advancements.

Keywords: Artificial Intelligence, Career Guidance, Career Counseling

1 Introduction

Professional growth is career guidance, assisting individuals to choose the career that suits their abilities, interests and demands of an occupation. With the fast changing nature of the contemporary job market, historically, human counsellor-based guidance approaches have been constrained by their failure to realize up-to-date, personalized advice due to scalability, accessibility, labour market awareness [1]. Given that industries developed and more jobs are created, there was a need to enhance the significance of real time, data based and customized career guidance. To meet these new standards, Artificial Intelligence (AI) has emerged as an effective tool for Career Support Systems (CSS) in offering more intelligent, dynamic and customized guidance experiences [2]. Training in AI technologies allows them to search through enormous sets of data, and depending on an individual's previous learning history, skill set, desired skills, company project or company industry focus, provide them with personalized suggestions[3]. For example, AI powered platforms such as Career Go illustrate how machine learning can be utilized to assist users in drafting their resumes, crafting their cover letters, as well as coming up with a smart prediction of one's professional journey in the employment market [2]. Moreover, this semantic comprehension, since it is based on sophisticated Natural Language Processing methods such as Sentence-BERT, facilitates matching high-user profiles with appropriate career opportunities and job descriptions [4]. Along with simple suggestions, AI tools also mimic evaluations as interactive quizzes and tests that assist in representing gaps in skills and enhancing employability readiness. Typically, these tools are rooted in Learning Analytics and Educational Data Mining methodologies such that usage relies on constant adjustment towards application of the tool based on interaction data of the users [5]. However, in spite of its positive pharmacological characteristics, there are a number of difficulties. However, there are fears about the correctness of the information, transparency of the algorithm and ethical consequences of automatic career choices[6]. In the trust domain, AI already autonomous guidance systems are also reliant on the explainability and fairness of the recommendations, which is something that needs to be verified to possess a big adoption domain[7]. This review paper addresses the development of career guidance from an AI perspective in terms of present-day applications, technical approaches, ethical considerations and future hopeful prospect. This is with the intention to provide some insight into how AI may be properly optimized for the reasons to enhance career choices.



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2 Literature Review

2.1 Traditional Career Guidance Methods

Schools and colleges have a major role to play in career guidance, usually through specialized career guidance centres and different mentorship schemes. These conventional practices usually involve psychometric tests to assess a person's abilities, interests, and personality, one-to-one mentoring sessions with career counsellors, workshops and career fairs for industrial exposure and access to counselling sessions on job applications and resume building. Although these traditional methods have benefited many career trajectories in a positive way, they also have significant drawbacks. Career counsellors tend to give generic advice that might not necessarily fit a person's individual goals. Furthermore, accessibility is a problem, especially for those who live in rural or underdeveloped areas. Finally, these methods are unable to keep up with the quickly changing job market and shifting industry trends. As digital technologies evolve, career guidance is also increasingly moving toward AI-based solutions. These new systems use real-time information, provide data-based advice, and provide tailored recommendations, which are more effective in addressing the weaknesses of conventional methods and more effectively meet the requirements of modern-day job seekers[2] .

2.2 Role of AI in Career Development

Based on machine-learned rules, AI makes career guidance data-driven, accessible, and highly customized based on a user's capabilities[4]. Some of the major improvements provided by AI-based systems are that they can recommend appropriate career options, job positions, and skill development plans using user information[8]. These systems also scan resumes and offer instant edits customized to specific job postings. In addition, they emphasize current industry trends and emerging job skills, and detect skill gaps with suggestions for learning or certification purposes. Indeed, the application of AI in career guidance empowers job seekers with real-time, individualized guidance, greatly enhancing the overall process. Nevertheless, these systems continue to experience challenges, including providing data accuracy, handling algorithmic bias, as well as coping with ethical issues [6]. In table 1 shown the Difference between Traditional career Guidance and AI- Powered Guidance.

Table 1: Comparison of Traditional vs. AI-Powered Career Guidance

Feature	Traditional Career Guidance	AI-Powered Career Guidance
Personalization	Generic suggestions based on standard assessments	Highly personalized recommendations based on real-time data [2]
Scalability	Limited to counselor availability	Scalable to millions of users simultaneously[1]
Data Usage	Relies on static psychometric tests	Uses dynamic learning analytics and user behavior data [5]
Industry Relevance	Often outdated job market information	Real-time insights using job boards and APIs like Gemini[3]
Skill Assessment	Manual evaluation and interpretation	Automated skill gap analysis via mock quizzes and NLP[4]
Resume and Cover Letter Help	General formatting tips and review sessions	Automated generation and optimization tools[2]

Feature	Traditional Career Guidance	AI-Powered Career Guidance
Accessibility	Limited in rural or under-resourced areas	Accessible globally through digital platforms[1]
Trust Factor	High trust due to human interaction	Trust issues due to explainability and AI bias[6][7]
Ethical Oversight	Human-judged, transparent decisions	Needs monitoring for fairness, privacy, and bias[6]

3 AI Applications in Career Guidance

With the help of Artificial Intelligence, career guidance is becoming easier and through this the enterprises are supported for classroom job application, interactive career assessment & real-time industry insights. AI is the basis of the tools like Gemini API from Google that feed data driven career suggestions and optimize job application

3.1 AI for Industry Insights

Keeping oneself informed about the latest industry trends and in-demand skills is perhaps the greatest difficulty that job seekers encounter. AI-based platforms help users by providing some essential features. Using market analysis based on data, AI collects data from job listings, IT reports, and industry news to pin-point emerging employment areas [5]. The platforms also enable users to follow in-demand skills by noting the most prominent skills needed for different jobs. Moreover, AI makes career path predictions based on trends and predicts which lines of work and industries will increase in the future. With AI-driven insights, users can make well-informed decisions regarding their careers, helping them remain competitive in the ever-changing job market.

3.2 AI-Powered Resume & Cover Letter Builders

Being able to keep oneself informed of future industry trends and hot skills is perhaps the biggest hurdle that people looking for employment must overcome. AI-powered systems help their users by offering multiple useful features. First, via data-driven market analysis, AI collects and deciphers job postings, IT articles, and business news to define areas of increased hiring prospects. Second, the platforms enable users to monitor in-demand skills by pointing out the essential competencies needed for different job positions. Third, AI provides career path forecasts by spotting industries that are likely to expand and predicting upcoming job positions. With these AI-generated insights, users are better equipped to make informed career decisions, helping them stay competitive and relevant in the ever-changing job market.

3.3 AI-Driven Mock Quizzes & Skill Assessments

Profession-specific quizzes and tests, which are created using AI, aid in preparing the individual for particular job positions effectively. Self-evaluation is assisted by AI-enabled quizzes by verifying a user's technical skills and knowledge in a specific sector. These quizzes also give feedback regarding improvement areas through personalized suggestions of learning materials that can fill knowledge gaps. Furthermore, AI makes interview preparation possible by creating simulated, job-based questions that help candidates practice and gain confidence. As career guidance websites continue to incorporate AI, users are better equipped for job applications and interviews, making them more likely to succeed in the competitive job market.

3.4 AI for Job Recommendations

Learning about the long and usually fruitless employment search experiences of most job hunters indicates that AI can make the employment search process much better by providing customized job opportunities according to individual user profiles. It does this by initially examining user interests, such as their skills, interests, and previous work history, to produce personalized job recommendations. Also, AI improves job matching by screening resumes and matching them with job descriptions to recommend the most suitable job postings. Lastly, AI offers real-time information by informing users of fresh job postings in their desired areas of interest so that they can remain informed of applicable opportunities. AI facilitates the job search process to be quicker and more efficient to the point of automating the job suggestions, thus conserving time and effort in looking for the appropriate career opportunities.

4. Challenges and Limitations

AI powered career guidance systems are really good but there are challenges and limitations with that. To be reliable and fair, issues related to accuracy, ethical issues and user trust should be addressed.

4.1 Accuracy and Reliability of AI-Generated Recommendations

At its essence, AI-based career advice is built on pre-trained models. Nevertheless, the reliability of such advice can be undermined by inaccuracies and obsolescence. Some major challenges crop up in such a scenario. One of them is limited data quality the training data for AI models may not always be fresh or pertinent. Another issue is the broadness of the suggestions, which might not take into consideration a person's goals, geographic interests, or individual limitations. There is also the danger of mismatched skill projections, whereby AI platforms ignore emerging skills or recommend career trajectories based on old or skewed historical trends.

4.2 Ethical Concerns: Bias in AI Models and Data Privacy

AI systems used for career guidance can inadvertently reinforce existing biases, leading to unfair or misleading outcomes. Bias in AI Models: AI models can learn gender and racial biases from the data they are trained on. For example, biased hiring data can lead an AI to prefer certain groups, and its job recommendations will be based on this [6]. Well-paying jobs may be recommended more frequently to applicants from richer educational backgrounds, ignoring equally capable individuals from disadvantaged communities. In addition, if AI sticks to following conventional industry standards, it could perpetuate outdated gender stereotypes e.g., suggesting secretarial jobs to women based on assumptions in biased data and second is Data Privacy Risks: Career websites based on AI depend on processing sensitive personal information such as education background, employment history, competencies, and interests, hence privacy and security are paramount. Threats are misuse of data, where user information gathered could be improperly sold or transferred. Users must have control over how their data is utilized, which highlights the necessity of explicit consent and transparency. Additionally, the sites need to adhere to applicable privacy legislation in order to safeguard user information and ensure trust.

4.3 User Trust in AI for Career Decision-Making:

Although AI has come a long way and has become very powerful, most people are still not willing to put their complete faith in it, particularly when it comes to significant decisions such as the selection of a career. This is a highly personal decision that individuals would like to make carefully and with confidence and AI has not yet mastered the type of instinctive judgment that is needed for such crucial decisions. Reasons for Low Trust in AI: Human Interaction Preference: Most individuals like to have a human mentor or counsellor who takes the time to learn about their individual situation and goals. They appreciate the personal touch and advice that is delivered from a human who listens, interacts, and

offers wise counsel. Although AI technology can help the human interaction is more comforting and fulfilling for most particularly when making life-altering choices. Black Box Decision-Making: AI models tend to act as "black boxes," whereby users cannot readily observe how the decisions are made or comprehend the rationale behind the suggestions. Such a lack of transparency is seen to create doubts that the advice could be faulty or misleading and in doing so, damage a person's future. Fears of receiving erroneous career guidance that would do them harm bring about scepticism and hesitation to wholly adopt AI for such critical issues[7]. Building User Trust: In order to enhance trust among users regarding AI-powered career platforms, a number of strategies need to be integrated. For starters, Google explained, the incorporation of explanation features is important. Google explained that AI platforms should give transparent, explicit explanations for the recommendations that they make, i.e., why a certain career, skill, or job role was suggested. By giving insights into the reasoning behind such suggestions, users can more effectively comprehend how the AI operates, demystifying the process and enhancing faith in the correctness of the platform. The second crucial aspect is the integration of human mentoring. By mixing AI-based insights with expert career counsellor advice, the suggestions become more credible. The inclusion of human mentors offers an element of one-on-one attention and endorsement, making users feel better understood and secure in their career planning choices. Lastly, regularly updating AI models is crucial in ensuring trust over the long term. AI platforms must be continually updated and given user feedback in order to perfect their models. This continuous process of improvement ensures that the career advice given is accurate, dependable, and current, thereby ultimately leading to long-term trust and satisfaction in users. Table 2 shown Challenges, description, their impact and solution suggested

Table 2: Challenges and Solutions in AI-Powered Career Guidance

Challenge	Description	Impact	Suggested Solutions
Data Accuracy	Outdated or insufficient datasets may lead to poor recommendations.	Misguided career paths or irrelevant suggestions.	Use updated, high-quality, diverse datasets.
Algorithmic Bias	Biases in training data affect fairness across gender, race, or background.	Unfair career advice, discrimination in suggestions.	Apply fairness-aware AI models: audit for bias regularly.
Lack of Explainability	Users can't understand how AI arrived at its conclusions.	Decreased trust and reluctance to rely on suggestions.	Implement transparent models: provide reasoned output explanations.
Data Privacy	Handling of personal and sensitive user information raises security concerns.	Misuse or leaks of data: user distrust.	Ensure strict compliance with privacy laws: transparent data practices.

5 Conclusion

Career guidance powered by AI has completely changed the way job seekers explore the opportunities, assess their skills, and ready for work. With the widely created Gemini API, users will benefit from being able to receive their own personalized career insights, career advice on resumes and cover letters, industry analysis on trends, and interactive skill assessments. These updates solve many drawbacks of typical career counselling and make career guidance more convenient, efficient, and data driven. Nevertheless, AI based career platform still has difficulty with accuracy, bias in AI models, data privacy risk, and user trust issue. Overcoming these limitations requires these practices to be done ethically, within the framework of area of transparency in the model's decision making and continuous model

improvements. CGCN does combine AI with human mentorship to augment and improve the credibility and effectiveness of career recommendations. Going further down the line, AI will play a role in career guidance as recommendation systems become more sophisticated and predictive analytics helps find career advancement pathways, as well as personalized learning roadmaps. While technology evolves, AI based career platforms will allow the pairing of job seekers and industry's demand for a more informed workforce that's ready for a career.

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