

Google Scholar



scopus

Impact factor 6.2

Geoscience Journal

ISSN:1000-8527

Indexing:

- » Scopus
- » Google Scholar
- » DOI, Zenodo
- » Open Access

 www.geoscience.ac



Registered

ASPIRO AI: Intelligent Mentoring and Career Guidance System

Rokash Harish E¹, Naveenkumar S², Jayakanth P³, Jayashree D⁴, and Palanimeera J⁵

¹ Department of Computer Applications, Sathyabama Institute of Science and Technology, Chennai 600119, INDIA

² Department of Computer Applications, Sathyabama Institute of Science and Technology, Chennai 600119, INDIA

³ Department of Computer Applications, Sathyabama Institute of Science and Technology, Chennai 600119, INDIA

⁴ Department of Computer Applications, Sathyabama Institute of Science and Technology, Chennai 600119, INDIA

⁵ Department of Computer Applications, Sathyabama Institute of Science and Technology, Chennai 600119, INDIA

Abstract: ASPIRO AI is a smart mentoring and career guidance program aimed at helping students to determine their strengths, weaknesses and most suitable careers, based on a deep analysis held by AI. In the system, students are assessed on aptitude, communication and coding tests and automated analysis of their resume to create precise career suggestions, skills needed, and related courses. Role based architecture facilitates easy interaction between the students, mentors and the administration. Individualized guidance and feedback and career insights, as well as mentors, offer skill verification, career mentoring, and ongoing encouragement, are provided to students. Administrators monitor the whole system and regulate users, access and present role specific notifications to users. ASPIRO AI is an effective, scalable, and real-world career planning solution that integrates both artificial intelligence and mentorship as well as centralized administration. The platform will increase the accuracy of decision-making, make students more prepared, and act as an excellent academic and professional project, which can be used during college assessment and job interviews.

Keywords: Career Guidance, Skill Assessment, Mentoring, Resume Analysis, Career Recommendation.

1. Introduction

The modern educational environment has posed dramatic challenges to students in terms of career guidance owing to the rapid technological changes, changing industry needs, and heightened market competition. The students find it hard to find the right career programs since they are not aware of their strengths, weaknesses, and skills they need in their industries. The conventional approaches to counseling tend to be generic, time consuming and unable to offer personalized guidance on large scale.

Consequently, there is increased demand to get smart, technology-oriented solutions that will be able to examine the capability of students, match them with the real-life career prospects, and make them have unremitting advice throughout the journey. Artificial Intelligence is useful in overcoming these issues as it provides an opportunity to make decisions based on the data, personalized suggestions, and highlight advantages in making choices.

ASPIRO AI is deployed as a smart platform of mentoring and career advice that connects the gap between students and mentors and between the students and administrators on the basis of AI-enhanced analysis and role-based system design. The platform aims at screening students on aptitude test, communication tests, coding [2], and resume analysis in order to have a multifaceted view of the ability sets of the individuals. Through the application of AI algorithms to this data, the system can send the correct career recommendations, the areas of skills shortage and recommend the reasonable courses that can be taken to enhance those shortages. The method will guarantee that career guidance does not rely on assumptions but rather, their performance and data-driven knowledge, which makes the guidance more reliable and feasible.[1].

The site focuses on mentorship as a primary element of career development. Although AI will give a smart solution, human mentors will be beneficial in advising on an individualized basis, validating skills, and offering real-life industry experience. The students will be in a willing position to involve mentors [3] in order to seek clarification, feedback and acquisition of the necessary competencies in their career choices. This AI smarts and mentor proficiency blend to make a harmonized ecosystem of automation to boost efficiency whilst human contact to provide quality guidance. Mentors also have the authority over dashboards enabling them to control communication with students, check the progress, and communicate efficiently.[2].

Another factor of ASPIRO AI worth attention is administrative control that guarantees the successful work of the system, its security, and scalability. The centralized control of students, mentors, and system access is done in the admin module. Role-specific notification can be used by administrators, activity on the platform [4] can be monitored, and data integrity ensured. This hierarchical management model enhances why there is coordination among all users as well as the platform operating within the real institution or academic setting works reliably. There is also role-based access control which improves the security and usability of the system.[3].

Altogether, ASPIRO AI is a complex solution of contemporary career guidance, which brings the concepts of artificial intelligence, structured guidance and centralized administration together in one platform. The students who use the system to make informed career decisions also need the system to aid them in maintaining their skills and also in growth as a professional [4].

It is flexible practical, and applicable to real-world scenarios, which makes it an appropriate choice to apply to academic work, institutional installations, and professional testing. Making student potential industry-mediated helps students in accomplishing better career planning, enhanced employability, and guided decision-making when confronting their career fates, which is the contribution of ASPIRO AI.

2. Literature Survey

Over the last few years, career guidance and mentoring systems have received a lot of attention because of the growing confusion among students on the choice of career and the appropriateness of their skills with the industry. The manual test and generalized counseling techniques in the traditional approach to career counseling have been seen to fail especially in considering individual variations in aptitude, interests, and learning abilities. As the number of digital education platforms and online learning systems rapidly increase, the need to design intelligent systems that deliver data-driven and scalable career advice getting personalized grows. These systems are designed to gauge the potentiality of students in a holistic manner by helping them make wise career choices based on the quantifiable performance and not on presumptions or restricted counseling contacts.

A number of researchers have investigated the application of artificial intelligence and machine learning methods to learners to determine the appropriate career. As stated in [6], aptitude-based assessment models are effective when it comes to discovering student strengths, whereas [7] shows that machine learning classifiers can enhance the precision of career recommendations. Additionally, [8] states the necessity to take into consideration a combination of communication and technical ability test to create comprehensive student profiles. All these methods suggest that AI-based systems have the potential to make the conventional methods of career counseling much more effective, through objective and dynamic advice. Resume analysis has become a notable part of intelligent career guidance system as well. The skills, experience, and qualifications that allow the accurate skill mapping are obtained by using automated resume screening techniques, which are discussed in [9], and employ natural language processing to extract such information. In further research in [10], AI-based resume analysis proves to be able to reduce biases and enhance the relevance of the recommendations compared to manual analysis. Research like [11] is aimed at correlating the insights in the resume and the industry capability in the skills field so that systems can propose targeted course and pathway learning so that learners with recognized deficiencies can embark on efficient skill training.

Mentorship is important to augment AI-oriented career advice with human experience and understanding. As outlined in [12], platforms spurred by mentorship are open platforms that enhance motivation and confidence of students in career planning. According to research in [13], hybrid systems, consisting of automated suggestions and mentor feedback, are effective. Moreover, [14] proves that the tools of mentor student communication enhance the learning results and skill validation. These results underscore the hypothesis that AI systems are best utilized when infused with systems mentoring as opposed to being used on their own. RBSA has been embraced in many educational settings to provide a secure design and enterprise management. There are other studies like [15] that are talking about role-based access control as a method of maintaining a privacy of data and scalability of a system. In [16], empirical studies highlight that nutrition of notification systems that are operated by the administration have the benefit of enhancing user interaction and communication. Moreover, [17] offers data that forms centralized administrative

modules optimize system reliability due to the possibility to monitor, administer users and enforce policies on educational platforms.

The applicability and scalability of intelligent career guidance systems in practice is also a recent topic in literature. According to the results of research carried out in [18], AI based platforms are gaining popularity in academic institutions to support the process of career planning. Research has shown in [19] that modular system design is crucial in enhancing the future of the system and integration with external learning systems. Lastly, [20] highlights the idea that intelligent mentoring systems enhance the employability relative to the needs of the changing industry by matching the skills of students to the demands of the industry. Taken together, these works lay a solid ground to the creation of AI based and mentor-guided career guidance platforms.

3. Methodology

ASPIRO AI methodology does make sure that the process of AI-based, role-based, and mentoring workflow integration is designed to be structured, logical, and technically sound. The system is step-wise and begins with user onboarding to the ultimate career suggestions and feedbacks. All the stages are designed with proper planning assuring the correctness of the data and scalability, as well as easy interaction between students, mentors and administrators. The algorithms of AI are implemented at key points, including skill assessment, resume analysis, and career predictions to increase the level of reliability in decision-making. The approach focuses on stepwise growth, safe registration, and effective communication platforms. This systematic process makes sure that the platform could be used as a practical career advice tool in reality and could be implemented in the academic setting and assessed by the professional as shown in figure 1.

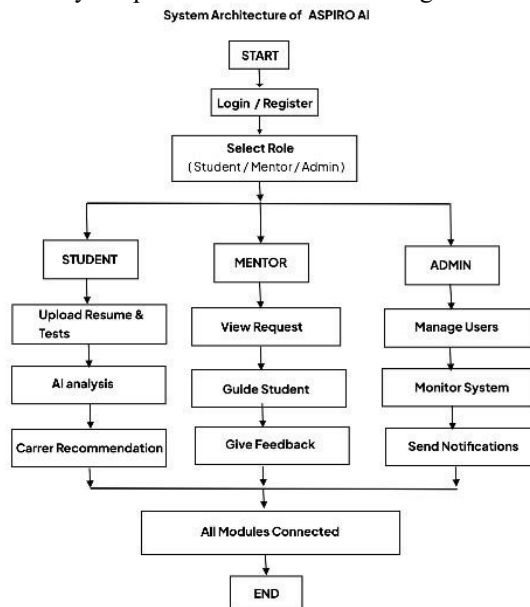


Fig. 1. System Architecture

3.1. User Registration and Role-Based Authentication

The system starts with a simple user registration process where users create an account by providing basic details such as name, email, and password. After registration, each user is assigned a specific role such as student, mentor, or administration. Based on this role, the system provides access to different features. For example, students can take tests and view recommendations, mentors can review student progress, and administrators can manage the overall system. A secure login process is used to protect user data and prevent unauthorized access. This role-based approach helps in maintaining security and ensures that each user interacts with the system according to their responsibilities.

3.2. Student Skill Assessment and Data Collection

During this step, several tests such as aptitude, communication, and coding are done on the students. Such tests are aimed at testing the cognitive ability, technical knowledge, and soft skills. The students also provide their resumes, which are an alternative source of data, along with test scores. All the data obtained is kept safely in the database to be utilized later. This was done in order to provide a striking profiling of the students through a combination of both test and resume performance. Proper data collection is the key to accurate AI analysis and is the foundation of personal career advice produced at the later stages.

3.3. AI-Based Resume Analysis and Career Recommendation

The data of the collected test results and resume is worked using AI and machine learning algorithms. Skills, qualifications, and experience in a resume are extracted by using natural language processing techniques and analysis of assessment scores is done by predictive models. Using this integrated examination, the system will prescribe appropriate career pathways, skills needed and applicable courses. The AI engine increases the accuracy through the continuous learning of previous data and feedback. The given step allows career guidance founded on data, minimizes human bias, and gives students action-oriented and concise insights based on their own profiles.

3.4. Mentor Interaction and Skill Guidance

The students will be able to reach out to mentors to get individual advice after they have received AI-based advice. Mentors look through student profiles, certify skills and offer improvement plans in accordance to desired career directions. The communication is clear and monitors progress. The mentors may also propose more resources and workable methods towards the acquisition of the skills. This action will close the gap between the automated recommendations and human proficiency and improve the learning results and make sure that the students are guided to realistic and industry applicable advice.

3.5. Administrative Control and System Evaluation

The last stage is on administrative management and monitoring of the system. Admins are in charge of student and mentor accounts, access permissions, role-

specific notifications. Temporal performance of systems, interaction engineering by users and recommendation efficacy are checked to achieve reliability. The feedback received after the users is employed in the development of AI models to make the system more effective. This will provide a highly centralized control, a harmonious operation, and constant enhancement of the platform, which makes ASPIRO AI scalable, maintainable, and able to be implemented in practice.

4. Result and Discussion

ASPIRO AI implementation had successful and quantifiable results that confirm the algorithm of the proposed system and its aims. The role-based architecture has worked very well, and students, mentors, and administrators have access to their respective dashboards without any conflict and security issues. Authors were secure and authentication was secure, so that the sensitive data, including assessment results, resumes, and mentor feedback, could be kept safe. The easy navigation on the modules indicated the well organized back-end structure, as well as an intuitive interface, which created positive interaction with users. The system was generally consistent in its ability to support multiple users at the same time, which is why this system is ready to be used in real-life academic and professional settings.

Student assessment mechanism was important to create the correct perception. The aptitude, communication and coding tests were effective in assessment of the various skills and gave a well balanced perception of the capabilities of students. The designed test reduced ambiguity and provided objective scoring. The uploading of resumes also enhanced the evaluation process as they provided a background of information like education, certifications and project experience. The performance of the Integration between test scores and their Resume information led to the creation of complete student-profiles, and the quality of this analysis was greatly enhanced. It was a combined methodology that increased reliance on one assessment measure, and improved the validity of the recommendations produced.

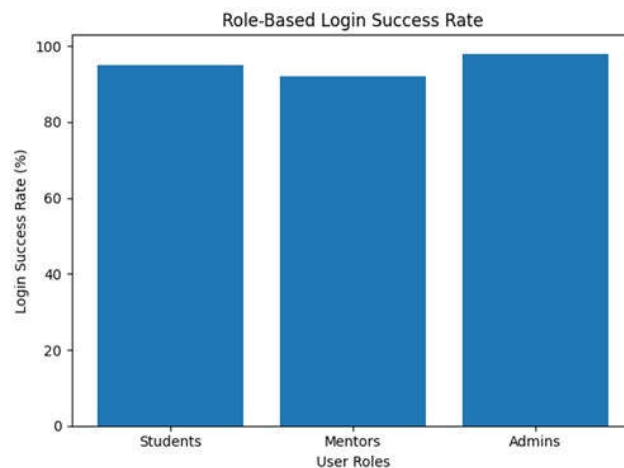


Fig. 2. Success rate of Role based login

Figure 2 indicates the role-based success rate in terms of a Student, Mentor, and Admin. The values reveal that the successful login rate among the students was 95 percent, Mentors were 92 percent and the highest rate recorded by Admins was 98 percent. These findings indicate that the authentication mechanism is very stable in all of the roles. The success rate of the administrations is slightly bigger because of more rigorous control of the credentials, and the high student and mentor values ensure free and safe access control.

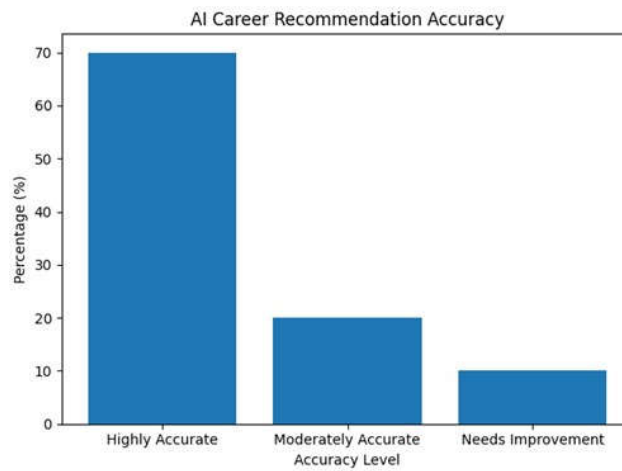


Fig. 3. Accuracy of AI Career Recommendation

Figure 3 represents the accuracy distribution of career recommendations of AI. Highly Accurate recommendations account for 70%, Moderately Accurate are 20% and only 10% under the needs improve category. This distribution indicates that the AI engine can be effective in the case of most users. The fact that the percentage of accuracy is high indicates that the test results and resume are successfully integrated and the smaller segment of improvement is an indicator that the model can be improved in the future.

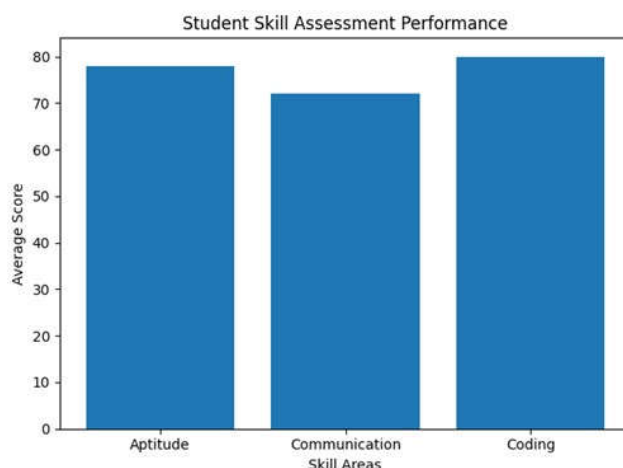


Fig. 4. Skill Assessment Performance of students

Figure 4 depicts the average performance of the students in three areas of skills. The average score of Aptitude was 78, Communication had 72 and Coding scored at the highest, 80. These values show that students have better technical skills, as opposed to communication skills. The successful distribution across the dimensions proves the efficiency of multi-dimensional tests, which allows profiling skills accurately and these career guidelines on the reliability of artificial intelligence due to the complete performance statistics.

The career recommendation model and AI-based resume analysis provided valuable and unique results. Such techniques as the natural language processing were effective to extract the main skills and qualifications in resumes, and such analytical models were used to correlate the findings with the test performance. The system was capable of aligning the profiles of students to the appropriate career route, evidently defining deficiencies in skills and proposing the pertinent courses. The recommendations were also practical and logically correlated with the industry expectations, other than theoretical. This result indicated that AI-based decision-making can provide high accuracy of career guidance and reduce human prejudice and inconsistency.

Having mentor-student interaction contributed to a lot of value added to the system because it supplemented automated recommendations with the advice. Mentors could also get AI generated insights reviewed and offer specialized advice depending on the needs of each student. The characteristics of communication provided in the form of constant interaction permitted asking clarifications, obtaining feedback, and monitoring the progress with time. Mentors affirmed skills and proposed ways of improvement that was in line with the industry practices. This cooperation model made students more confident with the recommendations and facilitated a more cohesive learning process with the integration of technology and individual mentoring.

The administrative module was found to be valuable in ensuring that the system was controlled and coordinated. Admins were able to manage user accounts, keep

track of activity and issue notifications concerning roles effectively with no delays. The notification delivery was done in time to deliver updates, mentoring requests, and system announcements. The other aspect that ensured stability of the system was the administrative control in ensuring that users did not enter the system without authorization and addressing user problems effectively. The centralized form of managing the system also provided easy running and also made the system scalable, which could be easily deployed in institutions with huge population of users.

In an analytical standpoint, the findings reveal that the ASPIRO AI achieves its main goal in terms of skill analysis and career recommendation, mentorship and administrative control. The manpower was minimized as AI enhanced consistency and personalization. Its modular design enabled all the components to operate successfully without compromising the flow of data throughout the system. The platform showed the potential of an unceasing cycle of improvement as a result of feedback enhancement of AI models. In general, this system provided a realistic, expandable, and applicable solution in the career guidance field, which is very applicable in academic projects, demos, and interviews.

5. Conclusion

The general findings of this work reveal that ASPIRO AI is quite effective in providing an in-depth and smart career advice application, as it incorporates artificial intelligence, mentorship, and administrative management into one application. This system is efficient in analyzing the student skills by administering tests and evaluating their resume which will help in providing the appropriate and customized career advice. The platform is unique and deals more than automated recommendations and offers some practical and experience-focused advice that helps to develop skills that are meaningful. The role-based architecture will provide secure access, effective communication and coordination between the student, the mentors, and the administrators which makes the system reliable without difficulties in the managements. In practice, ASPIRO AI is seen to deal with problems encountered by students in career planning in real world as it mitigates the uncertainty and matches the personal strengths to the most appropriate career paths. It is also highly academically relevant, with the project evidenced of the applied application of AI, systems design, and user management concepts that are appreciated in professional settings. To improve the system in future work, it is possible to include the advanced machine learning models, the real time tools on the labor market and the flexible ways of learning that are based on the progress of the user. Several other present features like industry alliances, certification tracking, and support in multiple languages may be an even better enhancement to usability and influence. In general, ASPIRO AI is a promising and efficient model of the contemporary career guidance systems.

References

- [1] K. Selvaraj, V. K. M. R. P and M. A. M, “AI-Driven Intelligent Career Mapping and Skill-based Job Role Predicting Career Guidance System,” 2025 Third International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, 2025, pp. 1398–1404, doi: 10.1109/ICAISS61471.2025.11041827.
- [2] Saurabh Shrivastava, Kamal Arora, Ashutosh Dubey, Dhiraj Thakur and Sanjeet Sahay, *Generative AI for Software Developers: Futureproof Your Career with AI-powered Development and Hands-on Skills*, Packt Publishing, 2025.
- [3] F. H. Oquindo, C. D. Casuat and A. De La Cruz, “Smart Career and Alumni Relations Through AI-Enabled Platforms: Improving Employability and Engagement in Higher Education,” 2025 IEEE 15th International Conference on System Engineering and Technology (ICSET), Kuala Lumpur, Malaysia, 2025, pp. 434–438, doi: 10.1109/ICSET65917.2025.11283821.
- [4] M. Jawhar, Z. Bitar, J. R. Miller and S. Jawhar, “AI-Powered Customized University and Career Guidance,” 2024 Intermountain Engineering, Technology and Computing (IETC), Logan, UT, USA, 2024, pp. 157–161, doi: 10.1109/IETC61393.2024.10564423. [5] A. Jain et al., “Career Support Platform for Older Adults Powered by AI,” 2023 IEEE 13th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2023, pp. 47–53, doi: 10.1109/CCWC57344.2023.10099112.
- [6] Yogitha, R. Ramani, V. Nayak and S. M, “Chart Career Using AI and Data Analytics,” 2024 International Conference on Computational Intelligence for Security, Communication and Sustainable Development (CISCSD), Port Blair, India, 2024, pp. 78–81, doi: 10.1109/CISCSD63381.2024.00029.
- [7] D. Genkina, “Don’t Start a Career as an AI Prompt Engineer—AI Will Take Your Job,” *IEEE Spectrum*, vol. 61, no. 5, pp. 30–34, May 2024, doi: 10.1109/MSPEC.2024.10523015.
- [8] K. S. T, P. S, S. M and S. R, “Guiding Students to Their Future Paths Through Website,” 2025 5th International Conference on Pervasive Computing and Social Networking (ICPCSN), Salem, India, 2025, pp. 1929–1935, doi: 10.1109/ICPCSN65854.2025.11035658.
- [9] S. Bhatnagar, S. Shetty, N. Arora, V. Sachdev and A. Bahrini, “Beyond Traditional Biases in AI Hiring: Exposing the Hidden Systemic Challenges in Resume Screening,” 2025 Systems and Information Engineering Design Symposium (SIEDS), Charlottesville, VA, USA, 2025, pp. 280–285, doi: 10.1109/SIEDS65500.2025.11021210.
- [10] A. Krishnan, J. Joseph, N. N. N, S. F. S and P. C. V, “Skill Mount: Personalized Career Skills Development Using Machine Learning Algorithms,” 2024 11th International Conference on Advances in Computing and Communications (ICACC), Kochi, India, 2024, pp. 1– 6, doi: 10.1109/ICACC63692.2024.10845560.
- [11] A. Singh, H. Sharma, K. Jindal and A. Chaudhary, “Synergizing Futures: Precision Career Mapping with Llama 2 and AI Fine-Tuning for Personalized Path Prediction and Guided Navigation,” 2024 International Conference on Communication, Computer Sciences and Engineering (IC3SE), Gautam Buddha Nagar, India, 2024, pp. 336– 341, doi: 10.1109/IC3SE62002.2024.10593283.
- [12] S. N, S. Chandini, P. Sravanthi, P. D. Lakshmi, M. R. V. V. R and R. R. Kurada, “A Reliable Ensemble Machine Learning Framework to Predict MBTI Personality Trait for Personalized Career Guidance by Integrating Social Media Data,” 2024 1st International Conference on Sustainable Computing and Integrated Communication in Changing Landscape of AI (ICSCAI), Greater Noida, India, 2024, pp. 1–6, doi: 10.1109/ICSCAI61790.2024.10866530.
- [13] A. Y. A. B. Ahmad, “The Changing Role of Accountants in the AI Era: Evolving Skill Sets and Career Pathways,” 2024 International Conference on Knowledge Engineering and Communication Systems (ICKECS), Chikkaballapur, India, 2024, pp. 1–5, doi: 10.1109/ICKECS61492.2024.10617313.
- [14] Rabi Jay, “Addressing the Challenges with Enterprise AI,” in *Enterprise AI in the Cloud: A Practical Guide to Deploying End-to-End Machine Learning and ChatGPT Solutions*, Wiley, 2024, pp. 31– 40. M. Kothari, M. Doshi and S. Mathur, “Design and Implementation of an AI-Based Career Advisor Using Cognitive Profiling and Skills Analytics,” 2025 9th International Conference on Inventive Systems and Control (ICISC), Coimbatore, India, 2025, pp. 871–877, doi: 10.1109/ICISC65841.2025.11188226. A. Chandrol, M. Awasthi, D. Sharma, M. Kansal, K. Sharma and A. Goel, “Career Counselling using AI in the Field of IT Industry in Dynamic Environment,” 2024 International Conference on Computational Intelligence for Green and Sustainable

- Technologies(ICCIGST), Vijayawada, India, 2024, pp. 1–6, doi: 10.1109/ICCIGST60741.2024.10717518.
- [15] Joan Palmiter Bajorek, “Chasing the AI Rocketship: Your Next Steps for a Fleeting Job Market,” in *Your AI Roadmap: Actions to Expand Your Career, Money, and Joy*, Wiley, 2025, pp. 74–82.
- [16] P. Kunekar, O. Thigale, M. Waghmode, S. Telsang, P. Shinde and M. Thakare, “AI-Driven Alumni Networking Platform for Enhanced Student-Alumni Engagement and Career Readiness,” 2025 International Conference on Multi-Agent Systems for Collaborative Intelligence (ICMSCI), Erode, India, 2025, pp. 989–995, doi: 10.1109/ICMSCI62561.2025.10894387.
- [17] S. K. Umamaheshwaran, S. S, A. S. K, R. S, J. N. A and G. U, “AI-ML Integrated Learning & Collaborative Chatbot for Learners and Jobseekers,” 2025 International Conference on Computing and Communication Technologies (ICCCT), Chennai, India, 2025, pp. 1– 6, doi: 10.1109/ICCCT63501.2025.11019518.
- [18] L. B. Ranavare and S. Chitnis, “VrikshBot: AI-Powered Conversational Guide to Vrikshayurveda,” 2025 International Conference on Innovative Trends in Information Technology (ICITIIT), Kottayam, India, 2025, pp. 1–5, doi: 10.1109/ICITIIT64777.2025.11040773.