EVOLVAI: AI-POWERED PERSONAL CAREER NAVIGATOR USING NEXTJS, NEON DB

N. DEVENDER[1] KANDHAGATLA RAMYA[2], DESHIDI MEENA KUMARI[3], GONE RITHIKA[4] GURRAPU UDAY KUMAR[5], RAMDAS VANKDOTHU[6]
[1,6] ASSISTANT PROFESSOR, [2345] STUDENT B. TECH
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
BALAJI INSTITUTE OF TECHNOLOGY & SCIENCE (AUTONOMOUS)

ABSTRACT

EvolvAI is a comprehensive, AI-powered career coaching platform that aims to improve job seekers' prospects in the fiercely competitive job market. The platform combines four key components: industry-specific knowledge for a particular job role, an AI resume builder, an AI cover letter generator, and AI mock interview preparation. The industry insights feature leverages artificial intelligence to analyze real-time job market trends and specific role requirements, offering users valuable information to shape their career strategies accordingly. The AI resume builder creates resumes that meet industry standards and pass through recruitment filters by utilizing best practices and relevant keywords, enhancing the applicant's chances of being selected. The AI-powered cover letter generator generates customized cover letters, empowering users to construct compelling narratives that effectively showcase their skills and experience, all in line with the requirements outlined in job descriptions. Moreover, the AI-powered interview module recreates authentic interview situations, presenting candidates with customized questions and providing personalized feedback to enhance their interview skills. EvolvAI is constructed using cutting-edge, scalable technologies that guarantee exceptional performance, a smooth user experience, and robust data security. With its serverless architecture and cloud integration, EvolvAI delivers fast, reliable ai-driven solutions that streamline job searches, boost career growth, and enhance professional development, helping users to effectively navigate the job application process and achieve their career goals.

1. INTRODUCTION

The contemporary career landscape is highly competitive and rapidly evolving, making it increasingly difficult for job seekers to secure suitable opportunities. From crafting engaging resumes and cover letters to excelling in interviews, individuals must overcome multiple challenges to stand out in the job market. While conventional career coaching services offer valuable guidance, their high costs create barriers for many aspiring professionals. To address these challenges, **EvolvAI: AI-Powered Personal Career Navigator** leverages **Artificial Intelligence (AI), Large Language Models (LLMs), and full-stack technologies** to deliver an intelligent, affordable, and scalable career coaching solution. EvolvAI integrates AI-driven tools that guide users through the entire job search and professional growth journey.

The **industry trends module** utilizes AI to analyze real-time employment market trends, emerging skill demands, and job-specific expectations, empowering users with data-driven career insights. The **AI resume builder** creates professional, ATS-optimized resumes tailored to specific industries, increasing their visibility in applicant tracking systems and improving job application success rates. Similarly, the **AI cover letter generator** produces personalized and compelling cover letters that highlight candidates' strengths and align with

doi: 10.48047/ijiee.2025.15.4.32

job descriptions, enhancing their chances of securing interviews. These AI-driven tools simplify and optimize the job application process, making it more effective and efficient[1-25].

Beyond resume and cover letter creation, EvolvAI emphasizes interview preparation to help candidates perform confidently in hiring processes. The **AI mock interview module** generates realistic interview simulations with customized questions based on the user's target job role. AI-powered insights provide feedback on responses, helping users refine their communication, improve confidence, and enhance their technical accuracy. In addition, EvolvAI identifies **skill gaps** by assessing user profiles and career aspirations, recommending relevant learning resources and career development pathways to support continuous growth and professional success.

Built with **Next.js, NeonDB, Prisma, Inngest, Tailwind CSS, and Shadcn UI**, EvolvAI ensures a seamless, responsive, and scalable user experience. By integrating AI-driven career insights with modern full-stack technologies, the platform democratizes access to high-quality career coaching, empowering individuals to take control of their career paths. As the job market continues to evolve, EvolvAI equips professionals with the necessary tools and resources to thrive, bridging the gap between job seekers and their ideal career opportunities.

2. LITERATURE SURVEY

Devashree et al. (2024) [1] proposed a career guidance chatbot that leverages machine learning, NLP, and decision trees to classify and analyze students' career choices. The system answers students' career-related queries using a frequency algorithm while incorporating recent job trends and market demands. However, it lacks the capability to provide fully personalized career recommendations based on a comprehensive analysis of students' profiles.

Mhatre et al. (2024) [2] introduced "Edu Counselor," an AI-powered career counseling chatbot aimed at assisting newly graduated students in exploring career options. The system uses Support Vector Machine (SVM) algorithms to present queries to students and make career recommendations. A decision tree classifier is also incorporated to process large datasets. Despite these advantages, the system does not assess students' technical capabilities when making career recommendations, limiting its effectiveness in providing tailored suggestions.

Ansari et al. (2024) [3] discussed the use of AI techniques such as fuzzy logic and Boolean logic in career counseling. Their chatbot system features a backend database for storing career choices, targeting students completing their secondary or high school education. However, the absence of advanced ML techniques limits the efficiency and speed of the system, making it less effective for modern career guidance applications.

Mathur et al. (2022) [4] explored the role of NLP in personal career recommendations. Their model analyzes students' academic experiences and interests to provide relevant career suggestions. The system employs ML-based logic and fuzzy logic to replace professional career advisors. However, it does not include a mechanism to evaluate students' past technical achievements, making the recommendations less comprehensive.

3. PROBLEM STATEMENT

The contemporary career environment offers a multifaceted array of challenges for professionals at every level of their careers. Perhaps the greatest obstacle is the availability and affordability of quality career guidance. Conventional career guidance services are often too costly, which restricts access for many, especially students, new graduates, and those who are financially strapped. In addition to cost, navigating a career is daunting. Many have a difficult time selling their skills and experience on a resume and cover letter, creating opportunities that get missed. Interview preparation is also a usual source of angst, with most not having access to resources

doi: 10.48047/ijiee.2025.15.4.32

and practice that build confidence to adequately sell themselves to prospective employers. Identifying gaps in skills and comprehending the demands of particular roles can also prove to be an important challenge. Lacking proper guidance, people can end up chasing professional paths that fail to suit their abilities or what the market dictates. The job hunt process itself can even be a painful and time-wasting exercise, involving a great deal of effort in finding right openings and submitting applications. The AI Career Coach project aims to resolve these complex issues by creating an AI-based solution that provides tailored advice and support in all of these vital domains. Using the power of LLMs, the project hopes to render career advancement material more accessible, affordable, and customized to individual needs.

4. EXISTING SYSTEM

The existing system for conventional approaches to career development depend on human career advisors, internet sites, educational institutions, and self-help publications, all of which have their own constraints. Personalized advice from career advisors comes at a price and is thus limiting in terms of access. Internet career websites provide job listings, resume guides, and career guidance but can be confusing and short of custom suggestions. Career services are made available by education institutions mainly to students and graduates, but they are not full-fledged or accessible to a large group. Self-help publications, like books and webinars, are tools for learning but do not involve interactive and current feedback. Also, the content and validity of these materials vary, so finding proper career counseling becomes a problem. Most of these conventional methods ask job seekers to search through enormous amounts of information without precise, tailored guidance, resulting in information overload. The main disadvantages of these methods are high expense, limited accessibility, non-personalization, and variability in quality. With the changing job market, there is an increasing need for more effective and personalized career guidance. AI-driven career coaching products endeavor to fill this void by providing affordable, data-driven, and engaging career guidance, allowing individuals to acquire context-specific insights, streamline job applications, and maximize professional development in an efficient and convenient manner.

5. PROPOSED SYSTEM

The envisioned AI Career Coach system will change the way careers are developed by providing a smart, personalized, and accessible alternative to conventional approaches. At its most basic level, the system takes advantage of the capabilities of Large Language Models (LLMs) to deliver AI-facilitated guidance and assistance in all areas of career planning and employment search. The functionality of the system is intended to solve the major problems of people in managing their careers, such as resume and cover letter writing, interview practice, skill gap identification, and career path exploration. Users engage with the system by submitting information regarding their skills, experience, career objectives, and employment preferences. The LLM further processes such input to come up with custom-made responses in the form of tips for resume improvements, personalized interviewing advice, assessments of prospective skills gaps, and career recommendation suggestions. The system can further interact with third-party resources like job boards and learning websites in order to serve users relevant career prospects and course content. The new system hopes to bridge the gap in current career coaching practices by providing individualized support at a lower cost and with better accessibility. The AI-based system available 24/7 means users have access to assistance whenever needed. Utilizing the strength of LLMs, the new system hopes to make career development more efficient, effective, and tailored to the individual.

doi: 10.48047/ijiee.2025.15.4.32

6. WORKING PROCESS

1. User Profile Creation and Input

The process begins with users creating a profile and providing relevant career-related details, including:

- **Personal Information:** Name, contact details, location (optional).
- **Educational Background:** Degrees, certifications, institutions attended, graduation dates.
- **Work Experience:** Previous job roles, companies, employment dates, key responsibilities. Resume upload for parsing (optional).
- **Skills and Expertise:** Technical and soft skills, proficiency levels, areas of expertise. Selection from predefined lists or free-form input.
- **Career Goals:** Desired job titles, industries, short-term & long-term aspirations, salary expectations (optional).
- **Job Preferences:** Preferred job type (full-time, part-time, contract), location, company size, and relevant criteria.
- **Resume Upload (Optional):** System parses and analyzes the uploaded resume for insights.

2. AI-Powered Analysis and Processing

Once the profile is complete, the AI engine, powered by Large Language Models (LLMs), performs multiple key functions:

- **Natural Language Understanding (NLU):**Analyzes user inputs to extract context, intent, and relevant information.
- **Skill Gap Analysis:** Compares user skills and experience against desired job roles, identifying areas for skill enhancement.
- **Resume & Cover Letter Optimization:**
    - If a resume is uploaded, the AI suggests improvements in content, formatting, and keyword optimization.
    - If no resume is available, the AI assists in drafting a professional resume and cover letter.
- **Interview Preparation:**

doi: 10.48047/ijiee.2025.15.4.32

  - Generates potential interview questions tailored to job roles and industries.
  - Provides AI-driven feedback and communication tips.
  - Simulates mock interview scenarios with interactive learning.
- **Career Path Recommendations:** Suggests relevant career paths based on skills, experience, and goals, outlining job titles, industries, and specialization areas.

3. Personalized Output Generation

Based on the analysis, the AI generates personalized recommendations, including:

- **Resume & Cover Letter Drafts:** Improved versions with content and format optimization for ATS compatibility.
- **Skill Gap Report:** Strengths and improvement areas with tailored skill development recommendations.
- **Interview Preparation Materials:** Industry-specific interview questions, response strategies, mock interview simulations, and feedback.
- **Career Path Insights:** Suggested job roles, industry trends, salary expectations, and skill requirements.
- **Job Recommendations (Optional):** If integrated with job boards, relevant job listings matching the user's profile.
- **Resource Recommendations:** Suggested online courses, training programs, articles, and other career development resources.

4. User Interaction and Feedback

Users can engage with the AI-generated recommendations, refine their resumes, seek additional guidance, and ask follow-up questions. The system continuously improves by refining suggestions based on user feedback, ensuring a dynamic and iterative career coaching experience.

5. Continuous Learning and Improvement

The AI Career Coach system evolves through:

- **User Interaction Analysis:** Learning from user inputs to enhance accuracy and relevance.
- **Algorithm Optimization:** Regular updates to AI models based on user trends and feedback.
- **Enhanced User Experience:** Periodic retraining of the LLM to improve recommendations, insights, and overall system efficiency.

This structured approach ensures a comprehensive and AI-driven career coaching experience, making personalized career guidance accessible, scalable, and efficient.

doi: 10.48047/ijiee.2025.15.4.32

Database Schema

7. ADVANTAGES

1. Personalized Guidance

- Analyzes user-provided data to offer tailored career advice and resources.
- Provides individualized recommendations based on career goals, skills, and preferences.
- Offers more specific insights compared to generic self-help materials.

2. Accessibility

- Available anytime, anywhere, eliminating geographical limitations.
- Provides career coaching to users in remote or underserved areas.

3. Affordability

- More cost-effective than traditional career coaching services.
- Makes professional guidance accessible to individuals with limited financial resources.

4. Convenience

- 24/7 availability allows users to seek guidance at their own pace.
- No need for scheduled appointments, making career planning more flexible.

5. Scalability

- Can support a large number of users simultaneously without compromising quality.

doi: 10.48047/ijiee.2025.15.4.32

- Suitable for individuals, educational institutions, and organizations looking for career guidance solutions.

6. Data-Driven Insights

- Analyzes vast amounts of career-related data to identify job market trends.
- Provides informed career recommendations based on real-time industry insights.

7. Consistency and Unbiased Advice

- Eliminates human biases that might influence career recommendations.
- Ensures standardized, objective, and reliable career guidance for all users.

This structured approach highlights the AI Career Coach's ability to provide efficient, accessible, and data-driven career support.

8. LIMITATIONS

1. Reliance on AI

- The quality of guidance depends on the capabilities and limitations of the Large Language Model (LLM).
- Potential biases in training data may lead to unfair or discriminatory recommendations.

2. Lack of Human Interaction

- AI cannot fully replicate the empathy and nuanced understanding of a human career counselor.
- Human interaction provides emotional support and helps address unspoken needs, which AI struggles to achieve.

3. Data Privacy Concerns

- The system handles sensitive user data, including personal details, career history, and job preferences.
- Secure storage and responsible handling of user data are essential to maintain privacy and trust.

4. Technical Limitations

- Performance may be affected by factors such as internet connectivity and computational resources.
- AI may struggle with complex queries and industry-specific career advice, leading to inaccuracies.

5. Potential for Over-Reliance on AI

- Users might become too dependent on AI recommendations.
- May hinder the development of critical thinking and independent decision-making skills in career planning.

This structured format highlights the key challenges associated with the AI Career Coach while providing a clear understanding of its limitations.

doi: 10.48047/ijiee.2025.15.4.32

9. FUTURE WORK

The AI Career Coach initiative gives a solid basis for future improvements to enhance personalization, utility, and user experience. A major area for improvement is personalized enhancement, where AI can map user needs more effectively through the integration of advanced natural language processing methodologies and enriching user profiles with skills, interests, and aspirations. Integration with career platforms would also simplify job searching by linking users directly to application systems and job boards, enabling more efficient job applications. Developing skill evaluation tools is another key enhancement to enable objective skill evaluation of users' skills, flagging areas that need improvement, and suggesting recommendations based on data. Adding mentorship features can link users to experts in their chosen fields for networking and career development opportunities. Fighting AI bias is equally important, making recommendations fair and equitable through better training data and algorithms. Furthermore, experimenting with multimodal input sources, like voice and video conversations, might further boost user engagement and accessibility. Lastly, ongoing testing and enhancement via user feedback and data analysis will make the system up-to-date, accurate, and efficient. These developments will further cement the AI Career Coach as a holistic and smart career development tool.

10. CONCLUSION

In conclusion, the AI Career Coach is a revolutionary product that uses Artificial Intelligence (AI) and Large Language Models (LLMs) to offer customized, affordable, and accessible career guidance. It supports the most important areas of career growth, such as resume optimization, interview practice, skill gap analysis, and career recommendations. In contrast to conventional career guidance, which may be costly and few and far between, this AI-based system can provide scalable and data-backed suggestions to aid varied career goals. Although issues like AI recommendation bias and lack of human interaction prevail, ongoing improvements in personalization, job site integration, and skill evaluation tools can make it more effective. The system's ability to adapt is what makes experts move about in the increasingly fluid job market more confidently and on a knowledgeable basis. With feedback from the user and continued refining, this technology has the promise of helping individuals accomplish career aspirations and sustainable long-term career fulfilment.

11. SYSTEM REQUIREMENTS

Category	Hardware Tools	Software Tools
Frontend Development	Computer/PC with internet access	Next.js (React Framework)
		Tailwind CSS (for UI design)
		JavaScript, HTML5, CSS3
		Shadcn UI (for reusable components)

doi: 10.48047/ijiee.2025.15.4.32

Backend Development	Server with at least 4GB RAM and 100GB storage	Node.js (version 14 or higher)
		Prisma (ORM for database interaction)
Authentication	Server with secure storage	Clerk (Authentication service)
Database	Server with SSD storage for fast access	NeonDB (PostgreSQL Database)
API Integration	Reliable network connection	RESTful API (if applicable)
Hosting & Deployment	Cloud server or dedicated hosting service	Vercel (Recommended for deployment)
Version Control	Computer with Git installed	Git, GitHub (for repository management)
Security	Secure physical server environment	Encryption protocols (SSL/TLS)
		Access control features via Clerk
Performance Monitoring	Monitoring hardware (optional)	Performance monitoring tools (e.g., Inngest)
User Interface	Responsive displays for testing	Responsive design frameworks (Tailwind CSS)
		Browser compatibility tools

REFERENCES

1. Devashree, A., Keerthana, S., Yogapriya, R., Kalaivani, V., &Shanthipriya, D. (2024). *Career Guidance Chatbot System using AI*.
2. Mhatre, M. S., Chaudhari, K. A., Jadhav, A. V., & Sathe, V. A. (2024). *Edu Counselor: Career Counseling Chatbot*.
3. Ansari, F., Saad, S., & Shareem, S. (n.d.). *Career Counselling Chatbot*.
4. Mathur, T., Dattatray, P. S., Singh, M., & Kumar, P. (2022). *Intelligent Career Guidance System using Machine Learning*.
5. Patil, S., &Rasave, A. (2021). *Artificial Intelligence Chatbot for Counselling Therapy*. SSRN. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3866861

doi: 10.48047/ijiee.2025.15.4.32

6. Zaidi, D., et al. (2021). *Artificial Intelligence Based Career Counselling Chatbot: A System for Counselling*. *Annals of the Romanian Society for Cell Biology*, *25*(6), 11732–11735. Retrieved from https://www.annalsofrscb.ro/index.php/journal/article/view/7695

7. Das, M., & Prasad, S. (n.d.). *A Chatbot System for Mental Health Care*. Retrieved from https://ijcrt.org/papers/IJCRT_195305.pdf

8. Satam, S., et al. (2010). *Mentoring Chatbot Using Artificial Intelligence Framework Publication Info*. Retrieved from https://smsjournals.com/index.php/SAMRIDDHI/article/download/1925/854

9. Ramdas Vankdothu,Dr.Mohd Abdul Hameed, Husnah Fatima" A Brain Tumor Identification and Classification Using Deep Learning based on CNN-LSTM Method" Computers and Electrical Engineering , 101 (2022) 107960

10. Ramdas Vankdothu,.Mohd Abdul Hameed "Adaptive features selection and EDNN based brain image recognition on the internet of medical things", Computers and Electrical Engineering , 103 (2022) 108338.

11. Ramdas Vankdothu,.Mohd Abdul Hameed,Ayesha Ameen,Raheem,Unnisa " Brain image identification and classification on Internet of Medical Things in healthcare system using support value based deep neural network" Computers and Electrical Engineering,102(2022) 108196.
12. Ramdas Vankdothu,.Mohd Abdul Hameed" Brain tumor segmentation of MR images using SVM and fuzzy classifier in machine learning" Measurement: Sensors Journal,Volume 24, 2022, 100440 .
13. Ramdas Vankdothu,.Mohd Abdul Hameed" Brain tumor MRI images identification and classification based on the recurrent convolutional neural network" Measurement: Sensors Journal,Volume 24, 2022, 100412 .
14. Bhukya Madhu, M.Venu Gopala Chari, Ramdas Vankdothu,.Arun Kumar Silivery,Veerender Aerranagula " Intrusion detection models for IOT networks via deep learning approaches " Measurement: Sensors Journal,Volume 25, 2022, 100641

15. Mohd Thousif Ahemad ,Mohd Abdul Hameed, Ramdas Vankdothu" COVID-19 detection and classification for machine learning methods using human genomic data" Measurement: Sensors Journal,Volume 24, 2022, 100537

16. S. Rakesh [a], NagaratnaP. Hegde [b], M. VenuGopalachari [c], D. Jayaram [c], Bhukya Madhu [d], MohdAbdul Hameed [a], Ramdas Vankdothu [e], L.K. Suresh Kumar "Moving object detection using modified GMM based background subtraction" Measurement: Sensors ,Journal,Volume 30, 2023, 100898

17. Ramdas Vankdothu,Dr.Mohd Abdul Hameed, Husnah Fatima "Efficient Detection of Brain Tumor Using Unsupervised Modified Deep Belief Network in Big Data" Journal of Adv Research in Dynamical & Control Systems, Vol. 12, 2020.

18. Ramdas Vankdothu,Dr.Mohd Abdul Hameed, Husnah Fatima "Internet of Medical Things of Brain Image Recognition Algorithm and High Performance Computing by Convolutional Neural Network" International Journal of Advanced Science and Technology, Vol. 29, No. 6, (2020), pp. 2875 – 2881

19. Ramdas Vankdothu,Dr.Mohd Abdul Hameed, Husnah Fatima "Convolutional Neural Network-Based Brain Image Recognition Algorithm And High-Performance Computing", Journal Of Critical Reviews,Vol 7, Issue 08, 2020(Scopus Indexed)

20. Ramdas Vankdothu, Dr.Mohd Abdul Hameed "A Security Applicable with Deep Learning Algorithm for Big Data Analysis",Test Engineering & Management Journal,January-February 2020

21. Ramdas Vankdothu, G. Shyama Chandra Prasad " A Study on Privacy Applicable Deep Learning Schemes for Big Data" Complexity International Journal, Volume 23, Issue 2, July-August 2019

doi: 10.48047/ijiee.2025.15.4.32

22. Ramdas Vankdothu, Dr.Mohd Abdul Hameed, Husnah Fatima " Brain Image Recognition using Internet of Medical Things based Support Value based Adaptive Deep Neural Network" The International journal of analytical and experimental modal analysis, Volume XII, Issue IV, April/2020
23. Ramdas Vankdothu,Dr.Mohd Abdul Hameed, Husnah Fatima" Adaptive Features Selection and EDNN based Brain Image Recognition In Internet Of Medical Things " Journal of Engineering Sciences, Vol 11,Issue 4 , April/ 2020(UGC Care Journal)
24. Ramdas Vankdothu, Dr.Mohd Abdul Hameed " Implementation of a Privacy based Deep Learning Algorithm for Big Data Analytics", Complexity International Journal , Volume 24, Issue 01, Jan 2020
25. Ramdas Vankdothu, G. Shyama Chandra Prasad" A Survey On Big Data Analytics: Challenges, Open Research Issues and Tools" International Journal For Innovative Engineering and Management Research,Vol 08 Issue08, Aug 2019

BIBLIOGRAPHY

I am Kandhagatla Ramya from Department of Computer Science and Engineering. Currently, studying 4th year B. Tech at Balaji Institute of Technology and Science. My research is done based on "EVOLVAI: AI powered personal Career Navigator".

I am Deshidi Meena Kumari from Department of Computer Science and Engineering. Currently, studying 4th year B. Tech at Balaji Institute of Technology and Science. My research is done based on "EVOLVAI: AI powered personal Career Navigator".

I am Gone Rithika from Department of Computer Science and Engineering. Currently, studying 4th year B. Tech at Balaji Institute of Technology and Science. My research is done based on "EVOLVAI: AI powered personal Career Navigator".

doi: 10.48047/ijiee.2025.15.4.32

I am Gurrapu Uday Kumar from Department of Computer Science and Engineering. Currently, studying 4th year B. Tech at Balaji Institute of Technology and Science. My research is done based on “EVOLVAI: AI powered personal Career Navigator”.

doi: 10.48047/ijiee.2025.15.4.32