

# **Review of AI Based Career Counselling**

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**Abstract:** *In the domain of technology-driven educational advancements, artificial intelligence (AI) has become pivotal in enriching student experiences. This abstract gives into the rising need for effective career counseling and proposes the development for a specialized AI-based software application to address this need. Recognizing the universal role of technology in students' lives, leveraging AI for personalized career guidance becomes necessity. The envisioned desktop application aims to redefine traditional career counseling methods by using AI algorithms' advanced capabilities. It seeks to provide personized recommendations to individuals or students navigating diverse career paths by evaluating academic performance, skills, and interests. Targeting three main user groups students, career counselors, and educational institutions the application offers a user-friendly interface for students to input details and preferences, resulting in a personalized career roadmap. Career counselors benefit from AI-generated analytics, entitle them to offer more informed guidance. This abstract covers the transformative potential of AI in enhancing career counseling services and facilitating informed career decisions.*

**Keywords:** AI-generated, user-friendly, transformative

## **I. INTRODUCTION**

In today's world choosing a career is very hard we have lots of options and many students' gets confused on what to choose, career counseling is not about what Career counseling isn't just about deciding what job you want after graduation. It's also about figuring out what skills you have, exploring different industries, exploring what you like what not, what skills are likely suitable your skillset and planning future career path. Career counseling is more about knowing and understating yourself, your hobbies, your skills, your abilities and capabilities to getting this done or doing a certain tasks. It is time when student gets multiple opinions about which career to choose from parents, teachers, friends, relatives and other educational specialized councilors. Many times students choose different field and later they know it's not easy or I am not enjoying this filed, this has no interesting topics or chapters. Consider a scenario where a student feels pressured to pursue 12th-grade Science, only to later realize their true interests lie in subjects like History and Geography, commonly found in the Arts stream. Unfortunately, at this juncture, they find themselves without the option to switch to the Arts stream. Then we came up with an interesting idea for helping these types of students by personalized assessments, forms, and many more things to gets add in Career Counseling Application.

AI-Based Career Counseling Application Algorithm Support Vector Machine (SVM):

Step 1: Introduction

Support Vector Machine (SVM) is a machine learning algorithm suitable for the Career Counseling application for secondary-level students. It's proficient in classifying data, making it valuable for predicting and categorizing students into career paths based on their characteristics.

Step 2: Data Collection and Preprocessing

Gather student data, including academic records, extracurricular activities, and career-related responses. Normalize numerical values, handle missing data, and encode categorical variables to prepare the data for analysis.

Step 3: Feature Selection

Identify relevant features contributing to career prediction, such as academic grades, extracurricular activities, and preferences expressed during interactions with the AI system.

**Step 4: Data Splitting**

Divide the dataset into training and testing sets. The training set is used to train the SVM model, while the testing set evaluates its performance.

**Step 5: Training the SVM Model**

Train the SVM model on the training set to differentiate between career categories based on selected features. The goal is to find the hyperplane that best separates data points.

**Step 6: Parameter Tuning**

Using cross-validation to optimize performance, Fine-tune SVM parameters like kernel choice and regularization.

**Step 7: Model Evaluation**

Evaluate the trained SVM model on the testing set to measure accuracy, precision, recall, and other metrics, ensuring its ability to generalize to new data.

**Step 8: Integration with the AI-Based Career Counseling System**

Incorporate the trained SVM model into the larger AI system to provide career recommendations based on classification results. Continuously update the model with new data to enhance accuracy.

**Step 9: User Feedback and Iterative Improvement**

Collect user feedback on provided recommendations to iteratively refine the SVM model's accuracy and relevance over time.

## **II. LITERATURE REVIEW**

According to research paper [1] the ever-changing nature of the corporate world breeds uncertainty, leaving individuals grappling with career decisions. This product aims to familiarize users with various career domains and guide them towards suitable professions. It delves into key aspects of human behavior, considering both conscious and subconscious factors that influence attitude and aptitude. The analysis incorporates Aptitude Tests, Psychometric Tests (such as the Myers-Briggs Type Indicator - MBTI), and handwriting analysis. While the question-answer module relies on individuals' conscious responses to provide career and personality insights, the handwriting module taps into subconscious patterns to map career paths and personality traits. Through the integration of these three modules, users are presented with tailored career options aligned with their strengths and inclinations.

According to research paper [2] Most of the students across the world are always in confusion after they complete higher secondary and the stage where they have to choose an appropriate career path. At the age of 18, the students don't have adequate maturity to accurately know about what an individual has to follow in order to choose congenial career path. As we pass through the stages, we realize that every student undergoes a series of doubts or thought processes on what to pursue after 12th which is the single tallest question. Then comes the next agony whether they have essential skills for the stream they've chosen. Our computerized career counselling system is used to predict the suitable department for an individual based on their skills assessed by an objective test. If one completes their online assessment which we have created in our system, then automatically they will end up in choosing an appropriate course which will also reduce the failure rate by choosing a wrong career path.

According to research paper [3] this report describes computer and Internet use by children enrolled in nursery school and students in kindergarten through grade 12 who are age 3 or older. The purpose of this report is to examine rates of use (that is, the percentage of individuals in the population who are users), how these technologies are used, where they are used, and how subgroups within the population may differ in their use of these technologies.

According to research paper [4] the business world is rife with change and unpredictability. This unpredictability has caused people to struggle with making professional decisions. This item will familiarize the consumer with a range of professional fields and assist them in selecting the acceptable line of work. In this piece, the essential elements of human

Analysis and conduct are taken into account. The secret Aspects comprise both conscious and subconscious elements that ascertain a person's aptitude and attitude. The analysis employed is Psychometric Test (Myers-Briggs Type), Aptitude Test Handwriting analysis and the MBTI indicator. The response section provides career and personality with thoughtful responses provided by persons, as opposed to handwritten modules emphasizes the unconscious process of career mapping and individuality. Consequently, combining the three components results in suitable career paths

### **III. PROBLEM STATEMENT**

Many of the students are confused about finding the right career path and lack career guidance. The central issue we're addressing with our AI-Based Career Counseling Application for students is the overwhelming complexity student's encounter when navigating the multitude of career options available to them. We're striving to provide guidance and support to individuals as they endeavor to identify the career paths that resonate most with their interests, skills, and aspirations amidst the vast array of fields and industries spanning the professional landscape. The main challenge we're tackling with our AI-Based Career Counseling Application for students is the confusion students often feel when they're trying to pick a career from so many options. We want to help make things clearer and easier for them. We aim to give students the support they need to figure out which careers suit them best based on what they like, what they're good at, and what they dream of doing. We're here to help them discover the paths that match their interests, skills, and goals, so they can make confident choices about their future.

### **IV. PROPOSED METHODOLOGY**

The key components of an AI-based Career Counseling project include:

Application has basically 6 parts.

- **User Profile Management:** Our first step involves capturing and storing user data, including educational background, skills, and preferences. This data forms the foundation for personalizing career recommendations tailored to each individual's profile.
- **Machine Learning Algorithms:** We will develop machine learning algorithms capable of analyzing user data to generate personalized career suggestions. These algorithms will take into account individual profiles as well as current market trends to offer relevant and timely recommendations.
- **Natural Language Processing (NLP):** Implementing NLP technology will enable our system to understand and process textual information from various sources such as resumes, job descriptions, and user queries. This will enhance the accuracy of our assessments and recommendations.
- **Recommendation Engine:** Our recommendation system will be built to provide users with tailored career options based on their profiles, preferences, and the current job market. This engine will continuously refine its suggestions to ensure relevance and usefulness to the users.
- **Data Analytics:** We will leverage data analytics tools to extract insights from user interactions with the system. This data-driven approach will enable us to continually improve and adapt to changing career landscapes, ensuring the system remains up-to-date and effective.
- **User Interface (UI):** Designing an intuitive and user-friendly interface is crucial for enhancing the user experience during career exploration. Whether through a web portal or mobile app, our UI will be designed to facilitate easy navigation and interaction with the system, empowering users to make informed career decisions.

### **V. CONCLUSION**

The study presents a thorough review of the referenced research. To sum up, deciding on a career is a major step that greatly impacts a person's life. It requires thinking about what you like, what you're good at, your values, and what you want to achieve in the long run. It's a journey of getting to know yourself and planning carefully. Choosing the right career brings many advantages, such as enjoying your job more, feeling happier, and achieving success in your professional life. When your career matches your interests and strengths, life becomes more satisfying. However, the process of choosing a career also brings challenges. There's uncertainty about the future, pressure from others, and the need to adapt to new situations. It's not always straightforward, and there may be obstacles and changes along the way.

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