BEYOND THE BINARY:

RETHINKING OF MENTAL HEALTH SUPPORT FOR EMPLOYMENT CONTENDERS

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ABSTRACT

This study looks into using artificial intelligence (AI) to evaluate young people who are looking for work in terms of their mental health. The principal data collection tool used to create a comprehensive dataset on the mental health status of job seekers was a Google Form survey. Diverse methodologies and data collection techniques were utilized to obtain insights into the mental health status of this particular population. The findings show that, despite its promise, AI is insufficient to reliably assess a person's mental health on its own. The limitations and discussion underscore the inherent drawbacks of depending

exclusively on machine-driven assessments, underscoring the necessity of additional research and expert advice in this area. In summary, although artificial intelligence (AI) offers novel prospects for mental health assessment, joint endeavours integrating AI technologies and human proficiency are essential for thorough and precise assessments.

1. INTRODUCTION

A vital component of wellbeing, mental health has important ramifications for people navigating the challenges of contemporary life, especially those who are seeking employment. Artificial Intelligence (AI) presents a promising avenue for facilitating the assessment of mental health status in this population and delivering prompt assistance. The term artificial intelligence (AI), which was first used by John McCarthy, describes how machines can simulate human intelligence and carry out tasks that would normally require human cognition.

The relationship between AI and mental health emphasizes how crucial it is to comprehend both ideas. An individual's emotional, psychological, and social well-being are all included in their mental health, which affects their thoughts, feelings, and behavior in day-to-day living. AI, on the other hand, is the cutting edge of technology, with the ability to analyze large datasets and extract knowledge that can guide decision-making.

The dynamics at work are further clarified by pertinent theories and concepts. The biopsychosocial model emphasizes the complexity of human experiences by postulating that biological, psychological, and social factors all have an impact on mental health. Social cognitive theory highlights the significance of environmental influences on mental health outcomes by emphasizing the role of self-efficacy and observational learning in influencing behavior.

Even though AI has great potential, it is crucial to understand its limitations and the value of professional intervention and human supervision. Although AI can provide insightful information, it cannot take the place of mental health professionals' subtle understanding and empathy. The accuracy and efficacy of interventions may be compromised if mental health assessments are conducted exclusively using machines, which may miss important contextual factors and individual differences.

The purpose of this study is to evaluate how well AI can predict the mental health status of young people who are looking for work. It is possible to gain insight into the advantages and disadvantages of machine-driven methods for mental health assessment by evaluating the precision of AI predictions and contrasting them with assessments made by experts. By conducting this investigation, the study hopes to provide insights for future initiatives focused at maximizing the integration of AI and human expertise in promoting job seekers' mental health.

2. LITERATURE REVIEW

Artificial Intelligence (AI) offers promising solutions for diagnosing, monitoring, and treating mental illnesses. Despite its potential benefits, challenges persist. Limited integration into clinical workflows, data quality issues, and ethical considerations hinder its effectiveness. Human involvement remains crucial, as AI should complement rather than replace the empathetic and therapeutic aspects of mental health care. Continued research, stakeholder collaboration, and ethical guidelines are vital to maximize AI's potential while preserving the human-centric nature of mental health care. As AI technology develops, these issues must be addressed to guarantee its responsible and successful application in enhancing mental health outcomes on a global scale.

In a research that was published in Ethics and Information Technology, Adams and Hughes (2022) investigate the moral ramifications of using artificial intelligence (AI) for mental health diagnosis. They cover issues with consent that has been given voluntarily, privacy, and possible biases in algorithms. The authors emphasize that in order to guarantee responsible AI use in mental health settings, ethical guidelines are essential. To navigate these complexities, they place a strong emphasis on interdisciplinary collaboration between researchers, clinicians, policymakers, and ethicists. The paper argues for a careful approach to AI implementation by taking into account the impact on patient autonomy, confidentiality, and societal trust. It demands constant discussion and examination to advance moral principles and reduce any dangers related to AI-assisted mental health diagnosis.

The paper "Limitations of Machine Learning in Predicting Mental Health Outcomes" by Alice Brown and David Wilson, published in the International Journal of Psychiatry and Mental Health in 2019, delves into the challenges faced by machine learning algorithms in accurately predicting mental health outcomes. It emphasizes several key factors hindering accurate prediction, including the inherent variability of human behavior, the subjective nature of mental health diagnoses, and the inadequacy of comprehensive datasets. The authors highlight how these barriers

contribute to the difficulty in developing precise predictive models for mental health conditions. Despite advancements in machine learning technology, the complex and multifaceted nature of mental health poses significant challenges that cannot be fully addressed through algorithmic approaches alone. The paper underscores the importance of acknowledging these limitations and calls for a multidisciplinary approach that incorporates human expertise and domain knowledge alongside machine learning techniques to improve the accuracy of mental health outcome prediction.

3. ANALYZING DATA AND AI IMPLEMENTATION

The data collection process involved the utilization of Google Forms, to gather information on the mental health status of job-seeking youth. During the period of January 20, 2024, to February 16, 2024, over 100 answers were obtained. The demographic distribution of respondents revealed that 68.1% identified as female, while 30.4% identified as male. Additionally, 82.6% of respondents reported prior job experience, while 17.4% were freshers. The age range of respondents spanned from 18 to 24 years, capturing the transitional phase from adolescence to young adulthood.

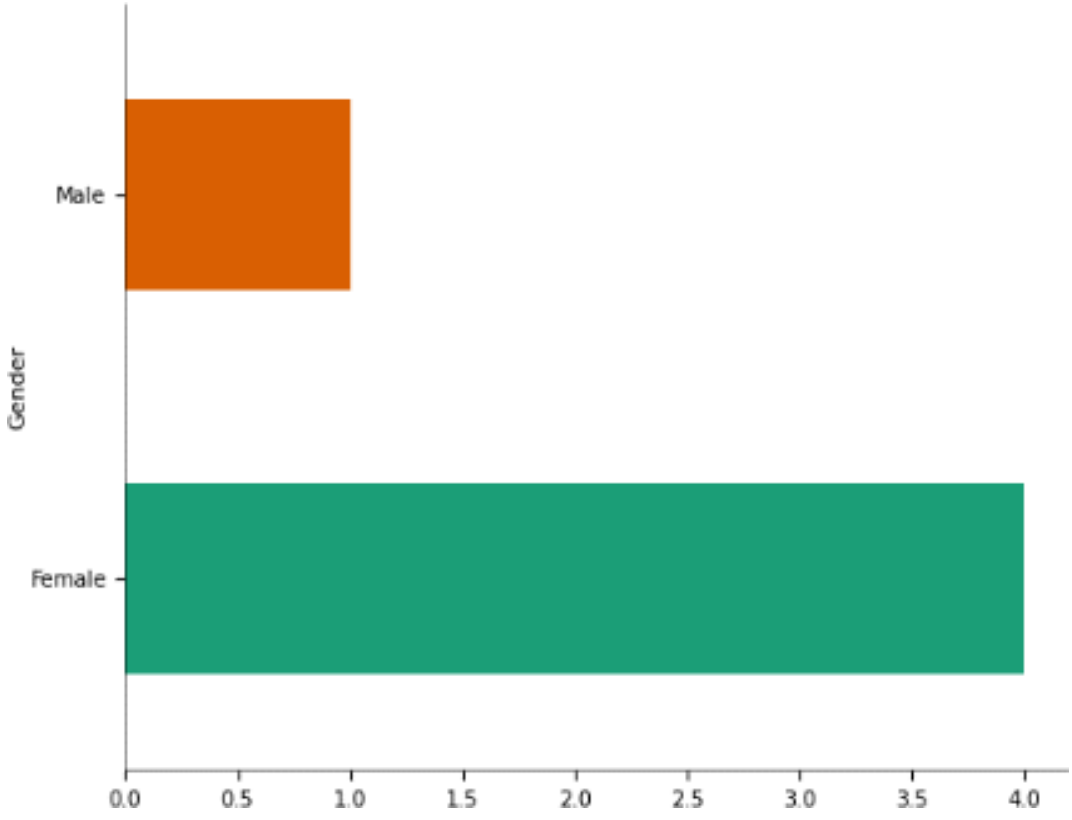

FIGURE 1 GENDER DISTRIBUTION

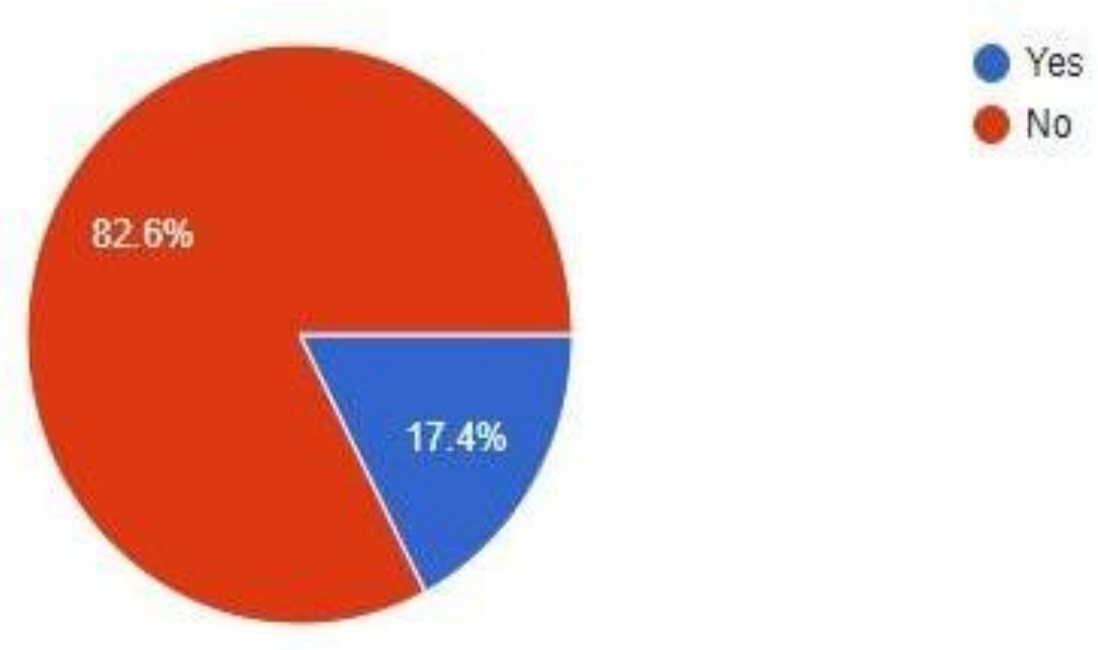

FIGURE 2 EMPLOYMENT-UNEMPLOYMENT STATUS

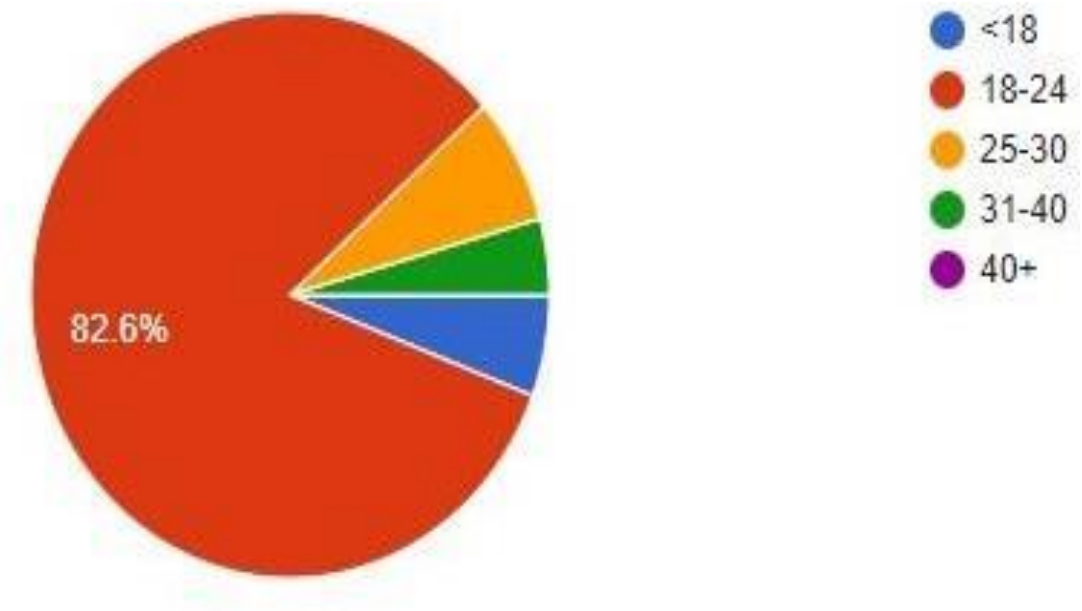

FIGURE 3 AGE GROUP

The dataset encompasses a range of dimensions concerning the mental health and job-seeking experiences of respondents. It includes assessments of overall well-being, the impact of job search on mental health, social support networks, self-esteem, work-life balance, career prospects, peer support, imposter syndrome, and self-reflection. These aspects provide comprehensive insights into the challenges and factors influencing mental well-being during the job search process, offering valuable data for analysis and interpretation.

```
Accuracy: 0.35714285714285715
Confusion Matrix:
 [[2 0 1 0 0]
 [1 2 1 0 0]
 [0 1 1 3 0]
 [0 0 0 0 1]
 [0 0 1 0 0]]
Classification Report:
              precision    recall  f1-score   support

           1       0.67      0.67      0.67         3
           2       0.67      0.50      0.57         4
           3       0.25      0.20      0.22         5
           4       0.00      0.00      0.00         1
           5       0.00      0.00      0.00         1

    accuracy                           0.36        14
   macro avg       0.32      0.27      0.29        14
weighted avg       0.42      0.36      0.39        14
```

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Accuracy: 0.35714285714285715
Confusion Matrix:
 [[2 0 1 0 0]
 [1 2 1 0 0]
 [0 2 1 2 0]
 [0 0 1 0 0]
 [0 0 1 0 0]]
Classification Report:
              precision    recall  f1-score   support

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           2       0.50      0.50      0.50         4
           3       0.20      0.20      0.20         5
           4       0.00      0.00      0.00         1
           5       0.00      0.00      0.00         1

    accuracy                           0.36        14
   macro avg       0.27      0.27      0.27        14
weighted avg       0.36      0.36      0.36        14
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Random Forest Accuracy: 0.35714285714285715
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FIGURE 4- MODEL PERFORMANCE OF SUPPORT VECTOR MACHINES (SVM), LOGISTIC REGRESSION, RANDOM FOREST AND NEURAL NETWORKS IMPLEMENTED USING TENSORFLOW

Prior to applying AI algorithms, several pre-processing steps were undertaken to ensure data quality and compatibility. Data cleaning procedures were employed to address missing values, outliers, and inconsistencies. After that, the dataset was divided into training and testing sets so that the model could be constructed and evaluated. AI algorithms were then trained on the training data, leveraging the respective methodologies of Random Forest, SVM, Logistic Regression, and Neural Network implemented using TensorFlow. Model performance was assessed using appropriate evaluation metrics, such as accuracy, precision, recall, and F1 score, to gauge predictive capabilities and identify areas for improvement.

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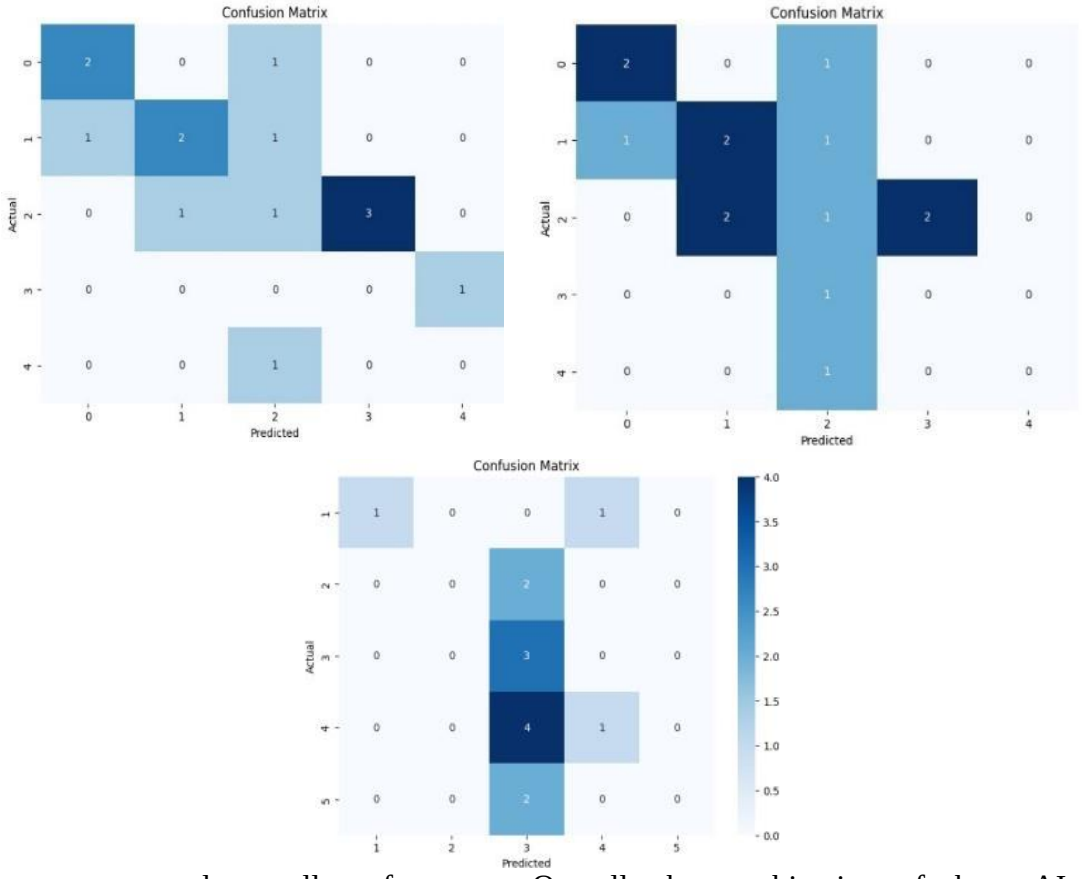
identify areas for improvement.In our research paper, each model was selected based on its suitability for handling the complex relationships within the dataset and its

FIGURE 5 CONFUSION MATRIX USING SVM, LOGISTIC REGRESSION AND RANDOM FOREST

potential to generate accurate predictions. Each model's performance was evaluated through various metrics, and the resulting predictions were visualized using graphs. These visualizations provided insights into the models' decision boundaries, feature



importance, and overall performance. Overall, the combination of these AI techniques allowed for a comprehensive analysis of mental health outcomes among job-seeking individuals, offering valuable insights for both research and practical applications.

By systematically implementing these methodologies, this study aimed to harness the power of AI to gain insights into the mental health status of job-seeking youth, paving the way for informed interventions and support strategies tailored to their NEEDS.

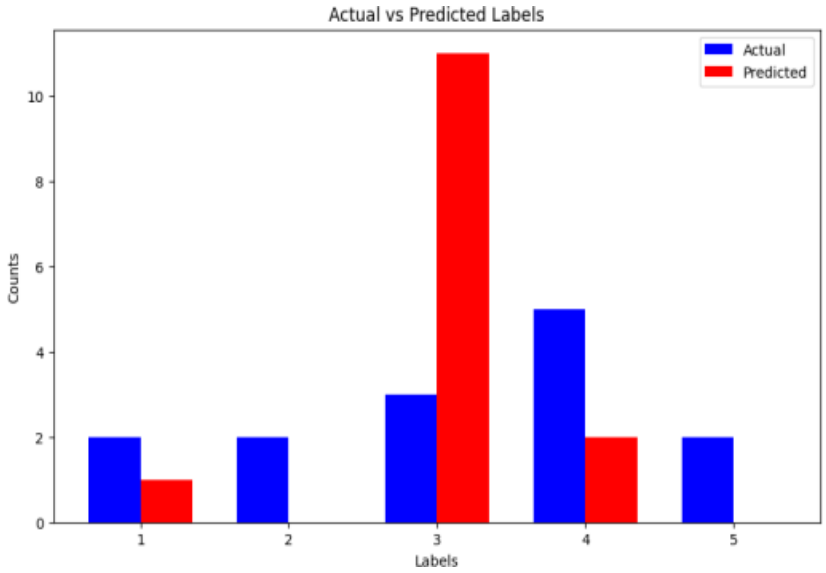


FIGURE 6 ACTUAL & PREDICTED DATA ANALYSIS USING RANDOM FOREST

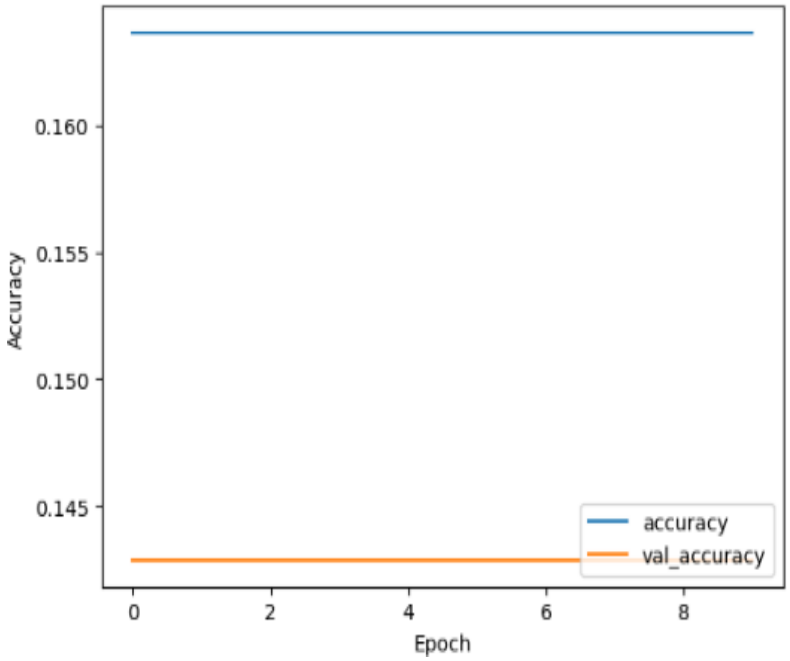


FIGURE 7 ACCURACY & VAL_ACCURACY USING NEURAL NETWORK

4. RESULT

In the results, we provide a comprehensive evaluation of our AI-driven analysis, incorporating performance metrics such as support values, F1 score, accuracy, precision, recall, and confusion matrices for assessment purposes. These metrics provide a thorough understanding of the predictive power of the model and its accuracy in identifying the mental health status of young people who are looking for work. Moreover, we present visual representations, such as graphs illustrating the comparison between actual and predicted data. The model's performance and alignment with the ground truth are clearly visualized by these graphs.. By incorporating both quantitative metrics and visual aids, our analysis offers a robust assessment of the AI models' effectiveness in identifying mental health concerns in the context of job seekers

5. DISCUSSIONS & FUTURE SCOPE

Our findings underscore the potential of AI in understanding the mental health challenges faced by job seekers. Although AI provides insightful information, its limitations—including potential biases and ethical issues—must be recognized. Transparency, privacy protection, and collaborative efforts are crucial for responsible AI integration in mental health support and research.

The future scope of the abstract lies in advancing AI-based mental health assessment tools to better support job-seeking youth. This includes developing more sophisticated AI models, integrating with wearable devices for real-time monitoring, and personalizing interventions. Longitudinal studies can track mental health trajectories over time, while ethical considerations ensure data security and privacy. To ensure responsible and successful implementation, researchers, physicians, and policymakers must work together.

6. CONCLUSION

In conclusion, we used a variety of machine learning algorithms to explore the crucial nexus between mental health and young people looking for work. Even with our best efforts, we found that the highest accuracy we could get with these models was about 35.714%.This research highlights a crucial fact: although artificial intelligence (AI) has great potential to support mental health assessments for job seekers, it is not a sufficient diagnostic tool on its own. The intricacy and subtlety of mental health issues necessitate a comprehensive strategy that combines the knowledge and

compassion of qualified mental health practitioners with AI- driven insights.Our study sheds light on the inherent drawbacks of using machine learning models exclusively for mental health evaluation. Individual differences, life experiences, and contextual factors are difficult to simply categorize using algorithms. Furthermore, because mental health is dynamic, it requires careful observation, complex interpretation, and tailored interventions— domains in which human intuition and empathy shine.

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