

## Problem Statement

- The client was looking to develop a solution to analyze human behavior based on handwriting. The use case can provide a lot of information about an individual which can particularly be used by HR while conducting the recruitment drive.

## Solution

- As a solution we have provided an AI-based solution where we have utilized Computer Vision to analyze the candidate's handwriting. There were 17 matrices which were prepared and independently scored. The final score was the average of all the 17 matrices which were mapped to the psychologist inferences.

## Benefits of our solution – how it helped in BET

Our AI-based handwriting analysis solution proved to be a game-changer for the client by addressing their need to assess human behavior through handwriting. Here's how our solution delivered impactful benefits

- ★ **Enhanced Recruitment Processes:** By providing HR teams with deeper insights into candidates' personality traits, the solution supported better hiring decisions. The analysis revealed behavioral tendencies, helping recruiters identify candidates whose profiles aligned with organizational requirements.
- ★ **Objective and Data-Driven Evaluation:** With 17 meticulously crafted matrices, the solution ensured unbiased and comprehensive assessment. Key parameters such as character orientation, word spacing, and statement gaps were analyzed, producing reliable and consistent scores.
- ★ **Psychologist-Backed Insights:** The integration of psychologist-mapped inferences added credibility to the results, bridging the gap between AI-driven metrics and human behavioral understanding.
- ★ **Time and Cost efficiency:** Automating handwriting analysis eliminated the need for manual evaluations, significantly reducing the time and resources required for behavioral assessments.
- ★ **Scalability and Flexibility:** The solution's adaptability enabled it to handle a large volume of candidate handwriting samples, making it ideal for high-volume recruitment drives.

## Challenges

- ✔ **Data Collection and Annotation:** Acquiring a diverse and representative dataset of handwriting samples was complex. Annotating the dataset with psychological inferences required expert collaboration with psychologists to ensure accuracy.
- ✔ **Feature Extraction:** Identifying and isolating relevant features such as character orientation, word spacing, and statement gaps demanded advanced computer vision techniques.
- ✔ **Development of Scoring Matrices:** Designing 17 matrices for behavior analysis required extensive research and domain knowledge to cover all relevant aspects of handwriting.
- ✔ **Mapping to Psychological Inferences:** Establishing a reliable mapping between the AI-generated scores and psychologist-backed behavioral insights required rigorous testing and validation.
- ✔ **Model Training and Validation:** Training the AI models to accurately analyze handwriting and generate consistent scores required substantial computational resources and iterative refinement.
- ✔ **Handling Variations in Handwriting:** Dealing with variations in handwriting due to age, health conditions, or writing tools required robust preprocessing and normalization techniques.
- ✔ **Integration and Scalability:** Designing a scalable system capable of processing large volumes of handwriting samples in real-time for recruitment drives
- ✔ **Accuracy and Reliability:** Achieving high accuracy in behavior prediction while minimizing false positives or negatives was essential to ensure the solution's credibility.

## Technology Details

- 🖥️ **Backend:** NodeJS
- 📱 **Frontend:** ReactJs, React Native Mobile applications
- 🧠 **Intelligence:** Machine Learning