

Proposing an NLP-Based Model for Multi-Class Classification of Holland Personality

Abstract

Aligning job roles with individuals' personalities is a pivotal concern in today's dynamic work environment, where mismatches can impair performance and lead to inefficiencies. Many employees find themselves in roles misaligned with their intrinsic traits, leading to dissatisfaction, disengagement, and high turnover rates. Despite advancements, organizations often rely on traditional assessments like surveys and questionnaire, methods that can be costly and timeconsuming. This study introduces a scalable, data-driven solution using text analytics to address personality-job alignment. We evaluate three cutting-edge NLP models—RoBERTa, BERT, and DistilBERT—aimed at classifying Holland personality types through LinkedIn profiles. Our methodology includes data collection, preprocessing, automated labeling using GPT 4.o mini, and model fine-tuning on Google Colab for multiclass classification. We measure performance using accuracy, precision, recall, and F1-score with macroaveraging for balanced evaluation. Results indicate that DistilBERT, when fine-tuned with optimal hyperparameters (learning rate of $5e-5$, batch size of 16, and 6 epochs), exceeds its peers, achieving 90.77% accuracy, with 0.91 in precision, recall, and F1-score. These findings demonstrate DistilBERT's capability in identifying personality traits, indicating a shift from traditional methods to more efficient solutions. This research offers insights for talent acquisition and workforce optimization, supporting organizations in understanding personality traits to enhance hiring decisions. Future studies can enhance these findings by using broader datasets and exploring alternative models to refine classification precision.