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GrafoEye: Prediction of Big Five Personality Traits using Handwriting Analysis

A dissertation by

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Abstract

Graphology is a subject which analyses handwritings of a person and expressing that person's personality traits. This process is already using as a part of employment recruiting, personality development programmes in some developed countries. There are many ways of measuring one's personality like physical appearance, speaking style, social media posts and comments, handwriting analysis etc. Among these, handwriting analysis becomes popular and can be considered as an accurate way of measuring one's personality because handwriting is always coupled with our brain, it is unique from person to person such as fingerprints. Due to these reasons someone can't cheat or hide the personality traits from a graphologist. But the limited availability of graphologists in a country, high hiring cost charged by them and the time consuming are the problem here.

The proposed system uses image processing for image pre-processing and extracting handwriting features like pen pressure, letter size, line spacing, lowercase letter 'f' and 't', tittle of letter 'i', connected strokes, baseline from the input image. In this research author tries all the possible ensemble learning methods such as boosting, voting, stacking, bagging with different classification algorithms and also do an evaluation on models and finally selects the best one with best accuracy and performance as the final classification model. Also performs hyper-parameter tuning in order to increase the accuracy of final prediction. These ensemble approaches have not been well experimented in the existing works. For the final output or the prediction class of proposed system author has been used the 5 components of Big 5 personality taxonomy and assign the most possible class among 5 classes according to the extracted handwriting features. For each component in Big 5 personality grouping, there are unique set of handwriting features mentioned in published research papers. Based on the extracted handwriting features our classification model gets trained, predict the final output class and gives a fully detailed analysis report considering all extracted handwriting features.

Keywords : Graphology, image processing, machine learning, ensemble learning, Big 5 personality

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