

## Two-Stage Approach for Forensic Handwriting Analysis Research Abstract

Trained experts currently perform the handwriting analysis required in the criminal justice field, but this can create biases, delays, and expenses, leaving room for improvement. Prior research has sought to address this by analyzing handwriting through feature-based and score-based likelihood ratios for assessing evidence within a probabilistic framework. However, error rates are not well defined within this framework, making it difficult to evaluate the method and can lead to making a greater-than-expected number of errors when applying the approach. This research explores a method for assessing handwriting within the Two-Stage framework which allows for the quantification of error rates as recommended by a federal report by PCAST (Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature Comparison Methods). The coincidence probabilities produced here can be used in later research to assess error rates using an ROC curve.