J14 Looking at How to Differentiate Measurements Used to Test Printing on Documents

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After attending this presentation, attendees will have learned about a semi-automated method used to test the similarity and differences of printing on documents.

This presentation will impact the forensic science community by familiarizing the forensic community with the potential of combining these methods with automated print quality testing.

Forensic document examiners can utilize automated print quality testing instruments to authenticate the printing on a document; however, in order to utilize automated print quality testing a scientist needs to instruct the instrument with which measurements to use to test the document. Scientists may select measurements that are likely to be most important to differentiate between a questioned and known document. Depending on the document being tested there can be many measurements to select from. Scientists may not be sure that the measurement they chose will differentiate documents until after they do further testing using an automated print quality testing instrument. It can take a lot of data results to select the best measurements to use. In this study a desktop scanner and computer software were used to select from a group of measurements, the measurements to test that were most differentiating between the printing on a questioned and known document. Mathematical tests (k-means clustering, hierarchical clustering, principal component analysis and discriminant function analysis) were performed and differences and similarities between the questioned and known documents were observed and graphed. More testing can be done and there is potential to apply this method to different types of print quality measurements and different types of documents. Results obtained using a scanner and software could be combined with automated print quality testing instruments to help select the most differentiating measurements. This method could also be used as a quick assessment of certain similarities and differences of printed characters and artwork on a questioned and known document. Current testing in this field using statistical methods will also be covered.

Questioned Documents, Printing, Desktop Scanner

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