

ABSTRACTS

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Study of Signatures Written over Extended Periods of Time

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One of the basic premises of forensic handwriting examination is that a person's writing may gradually change over time. While handwriting change is frequently evident to varying degrees, it is not known how reliably, and to what degree, change occurs.

The current study was conducted on the normal course of business signatures of 51 individuals, written over an average of four decades, in order to determine whether specific aspects of handwriting change over time. The research showed that, based on the eight characteristics defined by the authors, most individuals' handwriting changes very little over time, and that the most common change in writing occurs in line quality at an average age of 77 years. While limitations are noted in the research methods and materials, the size of the research sample provides a substantive foundation for continuing research on this topic.

Horizontal profiling, a new Method for Differentiation of Printouts of Laser Printers

Rolf Hofer, PhD

The area of characters from laser-printed documents was quantitatively measured using image analysis. A pdf text file was printed on 25 different laser printers from 6 different brands. The average value, the standard deviation and the variation of the blank area of the letters "o" within each of the sheets were calculated. The measures from the samples were compared to each other. Significant differences were found between the toner printers, in some cases even within the same brand and the same model.

It has been shown, that a horizontal profile of letter's blank area can be established. This profiling can be used as a fast, non-destructive forensic method for differentiation purposes of toner printed documents.

Thermal Ribbon Analysis Platform (TRAP): the Validation of a New Instrument for Recovering Images on Ribbons

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This paper details the development, testing, and subsequent validation of the Thermal Ribbon Analysis Platform (TRAP). The TRAP is a computer peripheral imaging device that scans used dye diffusion thermal transfer and thermal mass transfer ribbons. The device is designed to recover and preserve photographic data on the seized cartridges without modifying or damaging the media. The system enables the user to easily and efficiently mount and scan a wide variety of cartridge formats from a desktop computer. The TRAP provides a suite of recovery and image enhancement tools from an integrated software application. The software also supports various batch related image operations to reduce post-processing time. The validation study of the TRAP demonstrates that the system is capable of imaging, tracking, and processing various cartridge form factors reliably. Furthermore, it was determined that the TRAP successfully captures all imagery on any given ribbon.

A Blind Study on the Reliability of Hand Printing Identification by Forensic Document Examiners

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Recent court cases involving that hand printing, specifically block letters, have surfaced in the news and among the forensic document examiner community. (United States of America v. Gerald Johnsted, 2013, Florida v. Jesse Lee Miller, 2014) Moreover, the current trend in elementary education is away from cursive instruction so it is likely that printing will become even more commonly used in every day writing. It is very frequently seen in forms, addresses and work-related communications as well. As a result, it has become increasingly important to verify for the purposes of a Daubert Challenge that forensic examination of hand printed documents by qualified Forensic Document Examiners (FDE) is reliable. This study was undertaken in partial response to a court opinion, citing a lack of supporting research in the area of hand printing. It is the purpose of this research to test two hypotheses:

The qualified FDE can very reliably identify block letter hand printing (ALL CAP)

The qualified FDE can do so using the same methods and protocols as in the identification of cursive handwriting.

Each of fifty-three (53) qualified FDE participants was provided with a study packet intended to reflect evidence and procedures similar to normal bench work in a condensed form. Twenty-five (25) questioned writings were offered in individual "case packets." Each case included sample writings of three potential "suspects." Participants were asked to opine (on a nine-point scale) whether or not each suspect was the writer.

The compiled data clearly supports both of the hypotheses; (1) that qualified FDE's reliability rate with only 2.28% of calls inaccurate, when identifying (or excluding) a writer of block hand printing, and (2) that qualified FDE's do so using the same methods and protocols as in the identification of cursive handwriting.

Minimizing Cognitive Bias in Forensic Document Examination

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