

# Abstracts

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## **Examination of Newspapers**

**John D. Makris, Spiridon A. Krezias, and Vasiliki T. Athanasopoulou<sup>1</sup>**

This paper addresses the significance of applying a combination of tests involving paper, ink, writing offsets (image transfers), folds, printing processes, and defects to determine whether there were alterations within 3 newspapers. A brief overview of the examination methods is provided in a step-by-step analysis of this unusual case involving disputed inserts of a daily local newspaper. The examination revealed conclusively that the initially incorporated inserts had been replaced with the disputed ones.

## **Thinking Outside the Box**

**(Linton A. Mohammed and Gerald B. Richards)**

To prevent the possibility of any bias developing, many forensic document examiners are taught that they should get as little background information on a case as possible. In some cases, the lack of background information can be both misleading and detrimental to discovering the truth. This paper describes a case history in which background information on a medical record was necessary to resolve the case. The information was obtained after all examinations had been completed. However, if known beforehand, the information may have saved both valuable time and resources. Giving an opinion is easy; finding the truth may be much more difficult.

## **Application of Hyperspectral Imaging to Forensic Document Examination Problems**

**(R. Brent Ostrum)**

Imaging spectroscopy is a powerful tool used extensively in many different remote-sensing applications. The parallel to applications in forensic document examination is exact, but the potential of this method has not been fully explored. A customized imaging system based on electronically tunable filters was used to generate hyperspectral image data from ink samples known to be difficult to differentiate using other spectral methods. The potential of hyperspectral imaging (HSI) as a tool for forensic document problems was evaluated specifically for ink differentiations and the decipherment of obliterations on questioned documents. In this study, various HSI methods were used to show differences between test inks. The most effective results were seen in plots of spectra response, while other methods (such as pseudo-color images of select bands) proved to be ineffective. Select results were also compared to those obtained using a VSC-2000 and found to be as good or better. The basis for a fully automated HSI analysis system was developed.

## **Another Look at Handwriting Movement**

**(R. Brent Ostrum and Tobin A. Tanaka)**

Forensic document examiners usually observe and assess line quality in the written stroke without direct knowledge of the kinematics of the writing instrument used to produce it. Features in handwriting relating to line quality such as speed or pen pressure variation have been described since the days of Osborn. Qualitative assessment of such features by document examiners is routine and made according to well documented principles. In this pilot study, a digitizing tablet with an inking pen was used to measure the movement of a writing instrument as a time series of data points. Handwriting from 15 subjects was obtained using a limited passage of cursive text, basic handwriting movements, and hand-printed text. Traditional examiner evaluation of select features was compared to dynamically measured data produced by the writing tablet. The study suggests that this type of handwriting measurement system can be used to test various theoretical aspects relating to both handwriting movement itself and to the examination of that handwriting by document examiners. More specifically, the study demonstrates a new and effective method for the validation of examiners' abilities regarding the "subjective" assessment of dynamic writing characteristics from a static written record.

**A Study of Attempted Simulated Signatures by Teenage Writers  
(Ellen Mulcrone Schuetzner)**

The authors Harrison, Hilton, Huber and Headrick, and Osborn defined characteristics of simulation. Based on the written works of these authors, a study was conducted using 19 categories of reported characteristics of simulation. Attempted simulated signatures were obtained from 106 teenage writer participants and the results examined for 1 or more of the 19 simulation characteristics. This study supports the recorded works by these noted authors pertaining to characteristics of simulation.