



Questioned Documents Section – 2010

J23 A Method for Determining the Software Used to Print a Questioned Inkjet Document Utilizing Microscopy and Computerized Imaging

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After attending this presentation, attendees will be introduced to a way in which an examiner can identify the software used to print a questioned document using only the document itself and specimens collected from possible source computers.

This presentation will impact the forensic science community by giving examiners more tools to trace a document to its origins. With only the questioned document itself as evidence, forensic document examiners are often able to determine which printer was used but not which computer sent the file to the printer. This method may aid in such a determination.

This paper reviews a novel way of determining which software application was used to print a document by examining inkjet printing patterns. The source was conducted using only a questioned document and known specimens printed from PDF viewing software such as Adobe Reader® or Apple Preview®. Both Macintosh and Windows based computers were used to print on a common Epson inkjet printer.

A letter sized PDF containing a small gray square was created and used as a print sample. Sample documents were printed from eight software packages on different operating systems.

Great care was made to use all of the same printer settings. A look under the microscope showed initial findings of unique dot patterns that were reproducible. Occasionally, the differences were very small, only a dot or two. An attempt was made to automate the process with a device called the ImageXpert ®. This machine, used by the printing industry for quality assurance purposes, can be calibrated to count the dots with its camera and software. A method was developed to count these dots quickly with a very small standard of deviation.

A blind test was later conducted. Windows versions of Foxit and Adobe Reader 7, 8, and 9 as well as Macintosh OS X versions of Preview and Adobe Reader 7, 8, and 9 were used to print an unknown amount of documents from each software program. Seventy percent of the questioned documents correctly identified the software program used and was able to exclude all but two software options for the other thirty percent. No false associations or exclusions were made.

Questioned Documents, Inkjet Printers, Printing Software