



## **Questioned Documents Section Virtual Meeting**

September 21-24, 2021 - Poconos, PA & Wherever you are!

Due to recent travel restrictions which have disproportionately affected members of the Questioned Documents section, we are taking the QD section virtual for 2021! We will be using Zoom for these sessions and participants will receive information for logging into the workshops on Monday, September 20th. Please see below for our current virtual schedule. We do still have space to add some additional presentations on Thursday, so please email the MAAFS Questioned Documents section Chair, Khody Detwiler (Khody@lesnevich.com), if you are interested in presenting virtually.

For those that still wish to attend the MAAFS meeting in person, we will have all virtual sessions streaming on-site in addition to the general MAAFS programming.

To register, please visit <https://www.maafs.org/meeting-registration>.

### **Current Schedule (all sessions will be presented through Zoom)**

#### **Tuesday, September 21st - Half Day Workshop - Morning**

**Digitally Captured Signatures: Introduction, Visualization, Analysis**

*Niko Kalantzis, Chartoularios Institute of Questioned Document Studies*

#### **Wednesday, September 22nd - Full Day Workshop**

**Technology and Design of Security Documents for Counterfeiting and Alteration Resistance**

*Joel A. Zlotnick\*, United States Department of State*

#### **Thursday, September 23rd - Paper Presentations - Afternoon**

**3:30 pm Stabilization of Shredded IDs/Credit Cards**

*Lorie Cousin - FBI*

**4:00 pm Optimizing a method to digitize exemplars for use in the automated detection of trash marks**

*Paige Riley - Oak Ridge Institute for Science and Education / Federal Bureau of Investigation*

**4:30 pm An objective inter-comparison of trash mark constellations from 50 photocopiers utilizing manual and automated detection methods**

*Linda Eisenhart - FBI*

#### **Friday, September 24th - Half Day Workshop - Morning**

**PDF Forensics**

*Leonard Rosenthol, Adobe*

## **Pricing for Virtual Attendance**

Tuesday, Half-Day Workshop

MAAFS Members - \$30 / Non-Members \$80

Wednesday, Full-Day Workshop

MAAFS Members - \$50 / Non-Members \$100

Thursday & Friday, Paper Presentations and Half-Day Workshop

MAAFS Members - \$50 / Non-Members \$100

## **Workshop Abstracts**

### **Digitally Captured Signatures: Introduction, Visualization, Analysis**

*Presented by: Niko Kalantzis, Chartoularios Institute of Questioned Document Studies*

Digitally Captured Signatures (DCS but also known as biometric signatures, electronic handwritten signatures, eSignatures, online signatures etc.) have infiltrated the Questioned Document Examiner's workflow, being deployed worldwide and slowly appearing within casework. The QDE community rushed to identify the methodology for examination of DCS and build the bridge between the pan and paper product and the digital equivalent for signatures – an effort which led to the composition of the relevant Appendix in the Best Practice Manual of the European Network of Forensic Handwriting Experts by the STEFA Group 8 team. Still, experts are lacking exposure to DCS data as well as practice of the established methodology. This workshop aims at introducing the participants to the various aspects of visualization of the captured numerical data of DCS, and then allowing them to evaluate different types of data on test signatures and provide feedback through the use of questionnaires.

### **Technology and Design of Security Documents for Counterfeiting and Alteration Resistance**

*Presented by: Joel A. Zlotnick\*, United States Department of State*

Counterfeiting and alteration are continual threats to banknotes, passports, identity cards, birth records and other security documents. Although contemporary security feature technologies are certainly part of the solution to document counterfeiting and alteration, security design strategies that maximize the effectiveness of security feature technologies are also very important. This workshop explores the landscape of contemporary document security technologies and the design strategies that optimize their effectiveness. Depending on the meeting format, hands-on could proceed in one of two ways. First, virtual hands-on exercises could be facilitated by attendees examining their own personal passports, driver's licenses, birth records, etc. Alternately, a classroom format could allow for hands-on exercises using exemplar documents provided by the Bureau of Consular Affairs.

After attending this workshop, attendees will understand two facets of document security. First, this workshop provides an overview of common document security features like security fibers, watermarks, microprinting, color shifting inks, ultraviolet printing, holograms, laser engraving and many others. The second and equally important subject is how document components can be integrated with one another, and with document artwork, in ways that allow the security value of each anti-counterfeiting technology to be maximized.

NOTE: Workshop attendees will need to provide their own exemplar security documents (passport, currency, driver's license, etc), a magnifier, and 365nm ultraviolet light. More instructions will be sent to registrants ahead of the workshop.

## **PDF Forensics**

*Presented by Leonard Rosenthol, Adobe*

Half Day Workshop - Morning- Friday, September 24 (Included in regular meeting registration)

This workshop will focus on the forensic analysis of PDF digital documents. The workshop will begin with a general overview of the different components of PDF documents, followed by a detailed look into common PDF objects and how each can be forensically analyzed and evaluated. This workshop will include practical exercises and examples using sample PDF files. The purpose of this workshop is to provide attendees with a better understanding of PDF document structure and in turn a working knowledge to confidently address authentication concerns involving PDF documents when they arise in casework.

## **Paper Presentation Abstracts**

### **Optimizing a method to digitize exemplars for use in the automated detection of trash marks**

*Paige Riley - Oak Ridge Institute for Science and Education / Federal Bureau of Investigation*

Trash marks, which can be found on printed, scanned, or photocopied documents, are markings that result from permanent or transient defects in office machines, which can be used for both comparison and source attribution. Historically, trash mark comparisons were conducted manually by a trained forensic document examiner (FDE) but involved subjective decision making and were time consuming for a large quantity of documents. To introduce objectivity into this process, an automated method was developed which operated on digitized versions of the physical exemplars. To successfully use an automated tool, the digitized exemplars had to be captured in such a way that adequately balanced high-resolution detail and image capture with minimal background noise. Both photography and scanning methods were evaluated, in addition to parameters such as lighting and exposure, to obtain the optimal digital image for use in the automated program.

### **Stabilization of Shredded IDs/Credit Cards**

*Lorie Cousin - FBI*

Stabilizing shredded identification and bank cards after they have been reconstructed has proven to be difficult because they do not adhere well to the tacky substrate traditionally used when reconstructing documents. Further, the lack of flexibility of the cards and the ends curling from the shredder create additional issues when attempting to scan, photograph, and transport these items. This presentation will demonstrate an easy, affordable method and the tools and supplies needed to quickly stabilize these items after reconstruction.

### **An objective inter-comparison of trash mark constellations from 50 photocopiers utilizing manual and automated detection methods**

*Linda Eisenhart - FBI*

Trash marks are individual characteristics observed on printed, scanned, or photocopied documents that result from permanent or transient defects on the glass platen, slit glass, photosensitive drum, or lid of office machines. When multiple trash marks resulting from the platen are present, a pattern - or constellation - can be recognized and used for source attribution of questioned documents. Trash mark examinations have been employed in forensic laboratories for decades, yet the method remains relatively untested and relies on training, experience, and anecdotal information to support its validity. This study generated and harnessed objective data to empirically test one of the foundational theories for assessing source attribution of photocopied documents: if trash marks are present in sufficient quantity and/or quality, no two machines will

exhibit a constellation of trash marks that is indiscriminate from another. In this study, objective trash mark location and size data was generated for 50 known photocopiers using both a traditional and a novel automated detection method. Inter-machine comparisons were conducted using minimum Hausdorff distances to generate a quantitative assessment of how similar or different the 2,450 pairs of trash mark constellations from this study were. In this presentation, we will report the results of the inter-comparison of the trash mark constellations of 50 photocopiers using both traditional and automated detection methods.