***Presentation Title: Making a Better Impression
(minimum 2-hour lecture)***

***Presentation Overview:*** According to Oxford Advanced Learner’s Dictionary, the definition of “photoshop” (verb) means to “photoshop something to change a picture or photograph using a computer.” Today, many crime scene photographers and other technicians who photograph evidence (including but not limited to latent fingerprints, palmprints, footwear impressions, etc.) digitally are of the mistaken belief that any photograph can be “photoshopped” and made into a usable image. (They must not have read the memo about garbage in equals garbage out even in a digital world.)

Countless studies that have been completed as well as are being undertaken now to determine “sufficiency” as it relates to image quality (resolution) for forensic sciences, especially in terms of latent prints. Is 1000 PPI enough, or is 1200 PPI better? What about 1800 PPI? Is 2400 PPI too much? Should I capture 8-bit grayscale, 16-bit grayscale, 24-bit color or 48-bit color?

How do bit depth and resolution apply to Photoshop’s 8-, 16- and 32-bits per channel? Are the extended bit depths of value since the dynamic range (defined as the ratio between dark and bright values) of digital imaging devices far exceed the range of human vision? Furthermore, most cameras and computer monitors can reproduce only a limited (fixed) dynamic range. How do I determine if I have sufficient dynamic range … or too much or not enough?

The bottom line is that some basic concepts and guidelines must be understood – and followed – throughout the life-cycle of digital evidence management. In other words, you can only make a better impression by following established best practices. But what are these best practices?

This presentation will focus on best practices for processing (enhancing) impression evidence digitally. You will also learn what “sufficiency” means in terms of resolution, and how that sufficiency impacts image value and the ability to process your images.

We will also discuss the tools and techniques that should be used for processing images that meet the sufficiency requirement to improve not only image quality, but to assist with the analysis and comparison processes.

So, no matter what role you play, it is vitally important to make a better impression … and to solve more cases.

***Workshop Title: Advanced Digital Imaging Workshop (hands-on)
(may be 4- or 8-hour workshop)***

***Workshop Objectives:*** After completing this workshop, the class participants will have a more comprehensive working knowledge of Adobe® Photoshop® CC. The attendees will understand the advanced procedures used in forensic digital imaging, such as working with multiple layers, creating overlays and more, as well as how to apply those concepts in the documentation of the analysis, comparison, evaluation and verification processes and comply with ISO guidelines. This is a “hands-on” training program; all students will participate in a “practical application” exercises to ensure that the required learning objectives were achieved.

The following is a brief outline of the topics that will be taught in this eight-hour training program.

1. Adobe Photoshop Overview
	1. Setting up preferences for forensic imaging
2. Understanding image resolution:
image (file) resolution versus display resolution versus output resolution
	* 1. Calibrating images for 1:1 output
		2. Creating composites
3. Background suppression
	1. Using color information to suppress background noise
	2. Suppressing color background noise with Calculations
4. Image Enhancement Techniques and Processes
	1. Selecting an “area of interest” for processing
	2. Enhancement Techniques for creating contrast:
		1. Black & White
		2. Levels
		3. Curves
		4. Shadows/Highlights
	3. Using filters to suppress noise
		1. Noise > Dust and Scratches feature
		2. Sharpen > Sharpen and Unsharp Mask options
	4. Adjusting image orientation (rotation) while mitigating artifacts
5. Using Adobe Photoshop’s new Camera RAW filter for image processing non-camera RAW digital images
6. Comparing images on-screen
	1. Adjusting image resolution for side by side display
	2. Moving images simultaneously
7. Creating analysis and comparison documentation
	1. Marking minutiae
	2. Tracing ridges

***System Requirements:***

Attendees must bring a laptop and ***an external mouse***. The minimum acceptable system requirements for Adobe Photoshop CC are:

* Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor
* Microsoft Windows 7 with Service Pack 1, Windows 8.1, or Windows 10
* 2 GB or more of RAM **(8 GB recommended**)
* 2.6 GB or more of available hard-disk space for 32-bit installation; 3.1 GB or more of available hard-disk space for 64-bit installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system)
* 1024 x 768 display (**1280 x 800 or greater recommended**) with 16-bit color and 512 MB or more of dedicated VRAM; **2 GB is recommended**
* OpenGL 2.0-capable system

***NOTE:*** A free trial version of Adobe Photoshop CC can be downloaded from:

[www.adobe.com/downloads.html](http://www.adobe.com/downloads.html)

An internet connection and registration are necessary for required validation of trial subscriptions. Adobe Systems has reduced the length of the trial period for Adobe Photoshop CC from 30 days to only 7 days. I would recommend that participants in the training program not install the trial version until one or two days before the start of the workshop.

However, if you do load the trial version early, we can reset the trial date. You must, however, have appropriate permissions to write files to the drive where Adobe Photoshop is installed. (Even if it is just temporary, I would encourage you to have administrative permissions for the laptop.)

**BIO**

David Witzke (aka Ski)

Vice President, Program Management, Foray Technologies

With more than 25 years of AFIS and forensic digital imaging experience, David Witzke (better known as Ski), is considered to be one of the foremost experts in forensic digital imaging technologies. Ski is an associate member of the International Association for Identification (IAI) as well as the European and regional divisions of the IAI, is a member of the Canadian Identification Society (CIS), and is an Associate Member of the European Network of Forensic Science Institutes Fingerprint Working Group (ENFSI FWG). In addition, Ski was elected to the ENFSI FWG Steering Committee at the organization’s 2017 annual meeting in Cergy, France. And, Ski was named as the chairperson for the Digital Evidence Subcommittee for the IAI in September 2017.

Ski has been invited to speak at hundreds of regional, national and international IAI conferences; AFIS user group meetings; and the ENFSI FWG meetings in Split, Croatia; Taormina, Italy; Barcelona, Spain; Cerge, France; and Lausanne, Switzerland. Ski was also the guest instructor of the *Digital Imaging of Evidentiary Photography* training program at the FBI Academy in Quantico, Virginia for more than seven years, and was the instructor for the *Forensic Digital Image Processing* program at the British Columbia Institute of Technology (BCIT) in Vancouver, BC for more than six years. He also provided digital imaging training for the Automatic Fingerprint Recognition systems (AFR) Consortium at police agencies throughout the United Kingdom, and for the Federal Department of Justice and Police AFIS/DNA Services in Berne, Switzerland.

Ski is a contributing writer for three well-known forensic books: ***Crime Scene Photography*** (Third Edition, published 2016 by Academic Press), ***Introduction to Crime Scene Photography*** (published 2012 by Academic Press) and ***Footwear, The Missed Evidence*** (Third Edition, published 2013 by Staggs Publishing). (***Crime Scene Photography*** has been chosen by the IAI certification committees for the Certified Crime Scene Investigator (CCSI) Certification Test, the Certified Crime Scene Analyst (CCSA) Certification Test, the Certified Senior Crime Scene Analyst (CSCSA) Certification Test, and the Forensic Photography Certification Test.) Ski is also working on a fourth book on forensic digital imaging; the book is currently scheduled to be published in the second half of 2019.