

## The Washington Court of Appeals

The Washington Court of Appeals, Division One, recently became the first appellate court to formally approve the use at trial of fingerprint identification evidence obtained with the aid of digital image enhancement technology.

Although the techniques has been around for a few decades, its utilization by forensic scientists to assist with fingerprint identification is still relatively new, and there has not been any other published appellate court opinion ruling on the admissibility of such evidence. (State v. Hayden, Wash CtApp, DivI, 2/17/98)

### HOW IT HELPS

In the Washington case, a young woman was found raped and murdered in her apartment. Police investigators came to suspect a neighbor who was unable to account for his whereabouts on the night of the murder and who seemed nervous during a police interview. A bedsheet found at the scene contained bloody handprints that did not match the victim. A police print examiner, using traditional methods, treated the handprints with amido black stain. However, the contrast between the latent prints and the pieces of bedsheet was too subtle for the examiner to make a positive identification of the neighbor's prints. The examiner took the pieces of sheet to an expert in enhanced digital imaging at the Tacoma Police Department. The police expert took computer photographs, or digital images, of the pieces of fabric and used computer software to filter out background patterns and colors. Using the enhanced photographs of the latent prints, the examiner was able to find 12 points of comparison on one of the fingerprints and more than 40 on one of the palm prints. The expert's testimony was used to send the neighbor to prison.

### THE LAW

Before the experts may testify at a criminal trial about evidence obtained through a novel scientific technique, courts must ensure that the new technique and the evidence it produces are reliable. One of the things on which many courts focus in making this determination of reliability is whether the new technique is generally accepted by scientists working in that field. Strictly speaking, there is nothing "novel" about the scientific theory underlying the use of digital imaging computer software to enhance photographs. It evolved decades ago from efforts in the NASA space program to isolate images from far-away galaxies and receive signals from satellites. However, since its application is forensic scientist relatively new, the Washington court decided to treat it as if it were a new technique.

### PROOF OF RELIABILITY

Prosecutors initially argued that the cost was the only reason why enhanced digital imaging technology has not been more widely used by law enforcement organizations. The court was not so sure that concerns about the technique's reliability did not also play a role. Nevertheless, it concluded that testimony of police experts and journal articles presented by prosecutors established that the technique is now generally accepted. The court pointed out that the experts explained that the advantage of digital photographs over regular film photographs is that digital

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photographs are capable of picking up and differentiating between many more colors and shades of grey than film photographs. Moreover, like film photographs, digital photographs are based on mechanical responses to light and introduce subjectivity into the process. Although filters can be used to subtract some elements of a digital image--such as color or background--in order to make it easier to see the fingerprint, nothing is added, the Washington court stressed.

### NO SUBJECTIVITY

This feature, the court explained, distinguishes digital "enhancement" of an image from digital "restoration" of an image. Digital image restoration helps scientists and police officers identify things missing from a digital photograph on the basis of certain assumptions made about the image depicted. In contrast, digital image enhancement merely makes what is there more useable. Finally, the court noted that it is "clear even to the untrained eye that the fabric contains a hand print and that nothing appears in the digitally enhanced photograph that was not present on the fabric." This helps show that the process is reliable because the results are visually verifiable and can be easily duplicated by another expert. It is important that the petitioner in this case did not level any specific attacks on the reliability of using digital image enhancement in fingerprint identification and instead merely made broad assertions that the technique has not been generally accepted by forensic scientists. In light of this, it is possible that a defendant in a future case may be able to block the admission of similar evidence.

Source: <http://www.geocities.com/cfpdlab/perspect.htm>. Retrieved October 17, 2006.