Forensic Imaging with V++

Examples of image processing applications in the forensic laboratory.

Sample images courtesy of:
Australian Federal Police (AFP)
South African Police Service (SAPS)

Specialized processing implemented by:
Bruce Comber (AFP) and Digital Optics
Local contrast

Local contrast enhancement reveals the ridge structure inside the printed characters
Colour channel processing

Original image

Extraneous information is removed using an algebraic combination of colour channels
Enhancing irregular regions

Fingerprint with mismatched area

Enhancement of irregular area
Fourier enhancement (FFT)

Fingerprint on patterned material

FFT of original image

Modified spectrum
Separated patterns

The fingerprint image has been separated from the background pattern.
Severely degraded prints

Latent fingerprint with severe interference from a pattern on the surface material

Results of Fourier enhancement in central region
Fingerprint ridge and pore analysis
3D visualization
Correcting distortion

Distortion paths

Corrected palm print
Curved surfaces

Fingerprint on bullet cartridge is "unwrapped" using a rotation stage and multiple image captures
Direct interface to AFIS

Original high-resolution image

Automatic transfer to AFIS at 500dpi

Print at calibrated size
Hair sample analysis
Digital Optics V++ 5.0