DIGITAL OPTICS
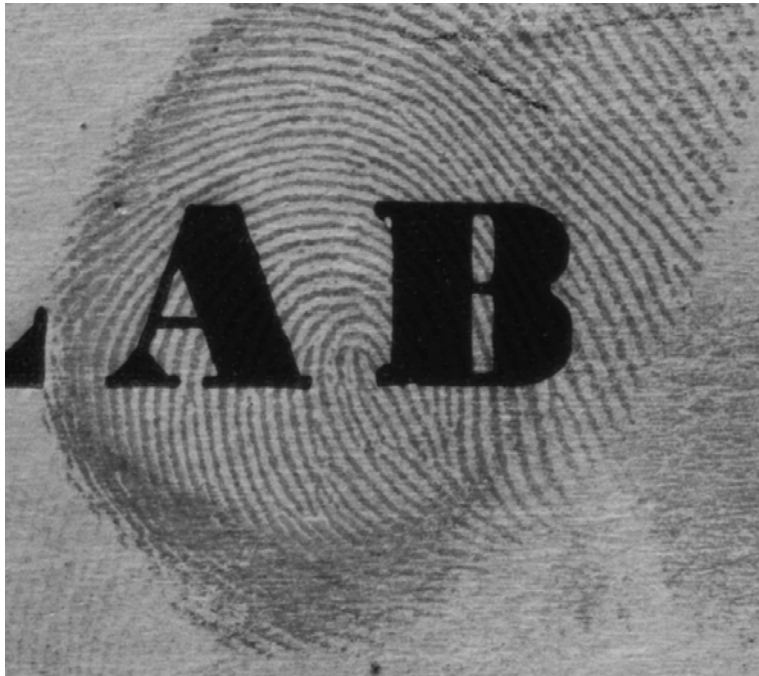PRECISION DIGITAL IMAGING

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:
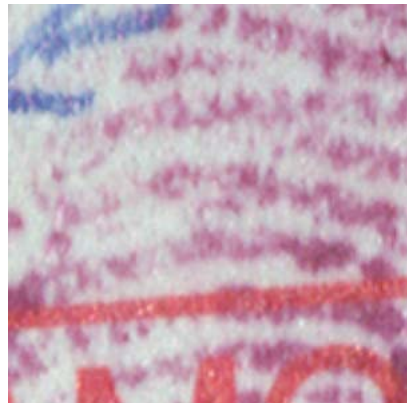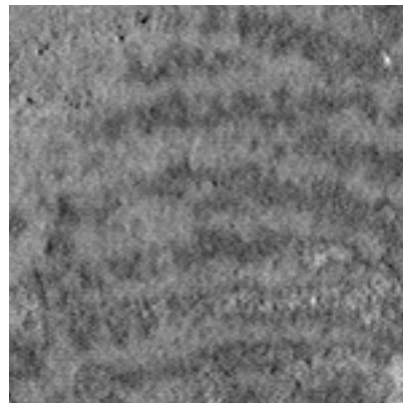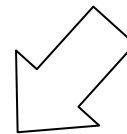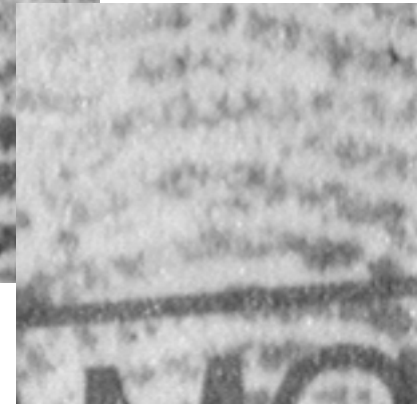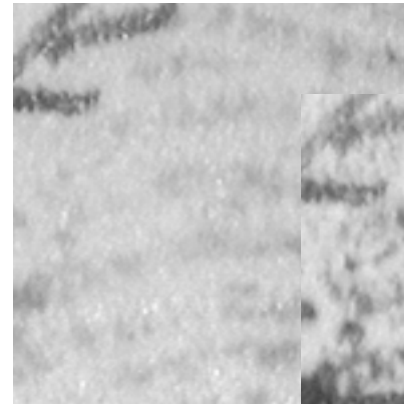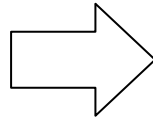*Bruce Comber (AFP)* and *Digital Optics*

Local contrast

Local contrast enhancement reveals the ridge structure
inside the printed characters

Colour channel processing

Original image

RED

GREEN

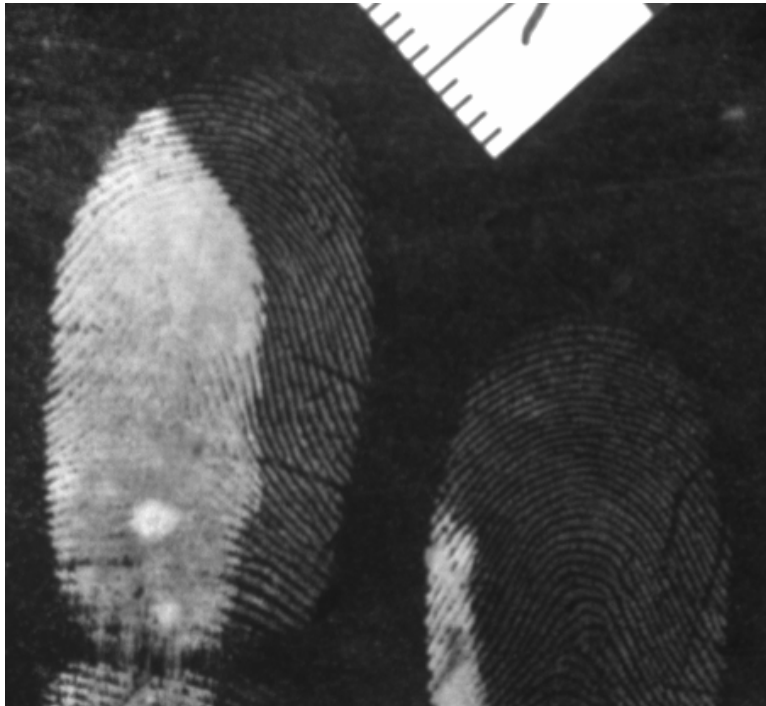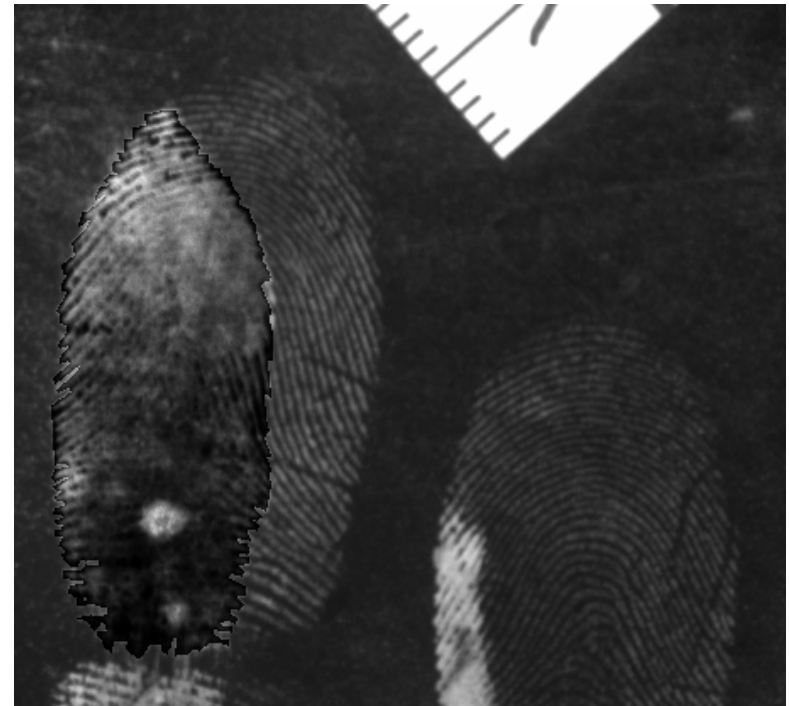BLUE

Extraneous information is removed using an algebraic combination of colour channels

Enhancing irregular regions

Fingerprint with mismatched area
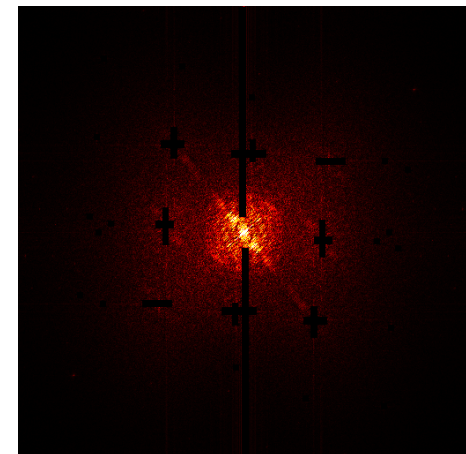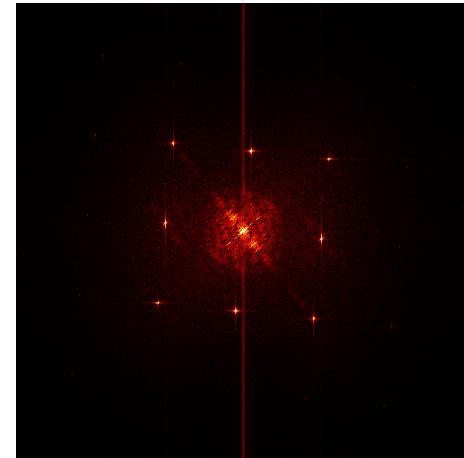
Enhancement of irregular area

SAPS

Fourier enhancement (FFT)
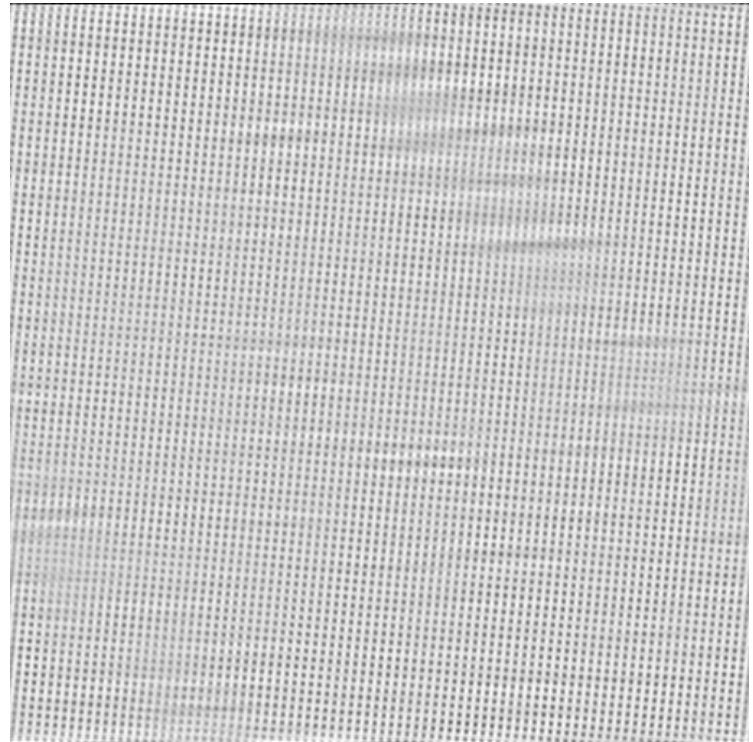
FFT of original image

Fingerprint on patterned material
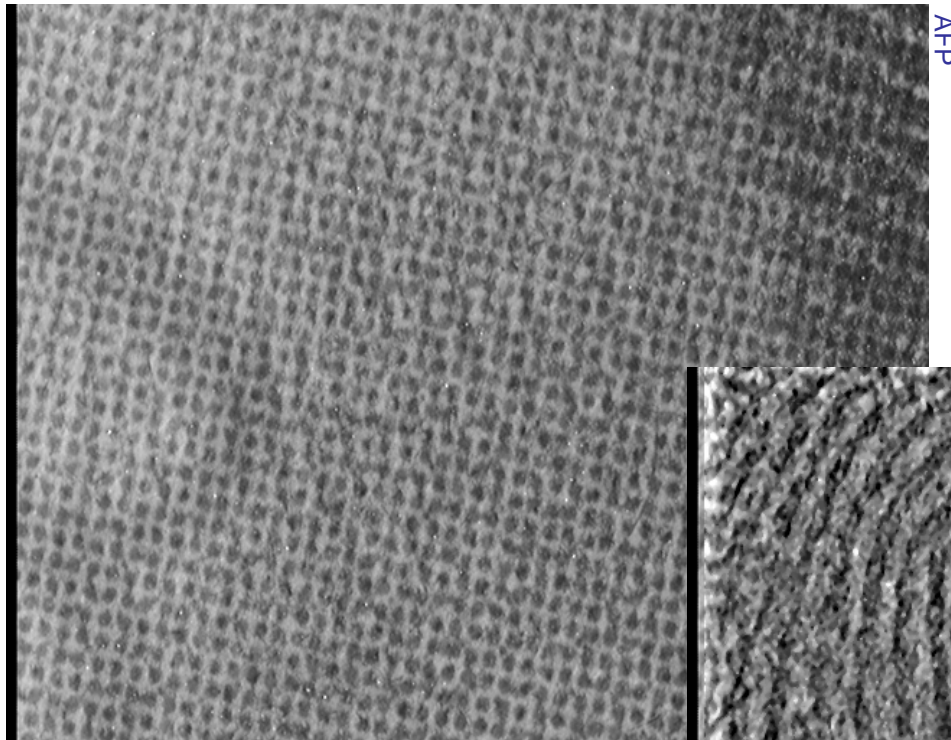

Modified spectrum

Separated patterns

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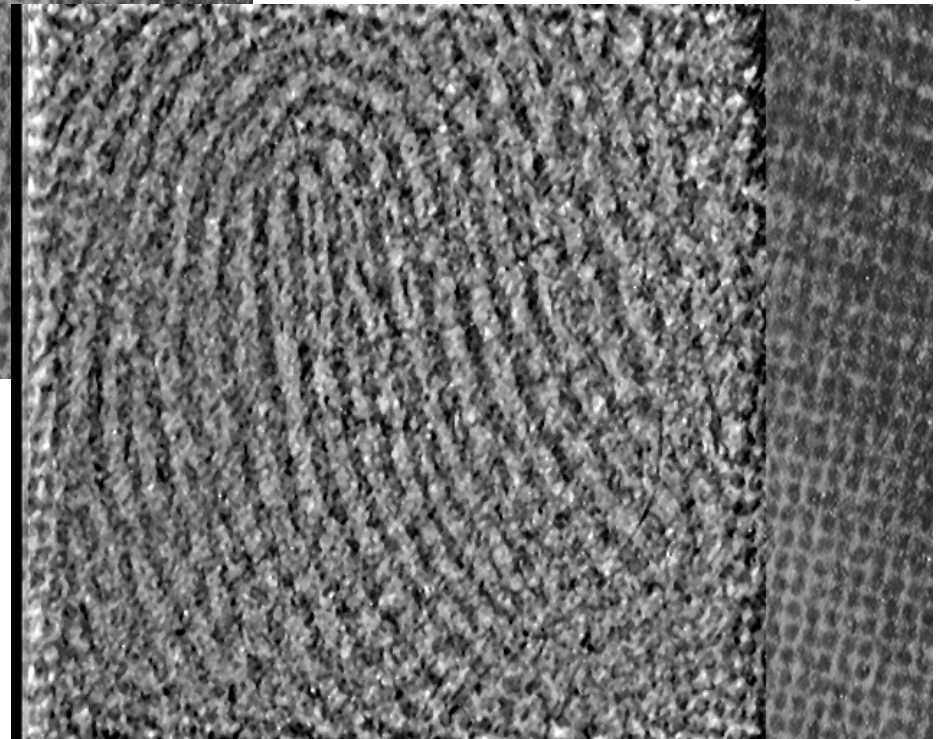
Severely degraded prints

AFP

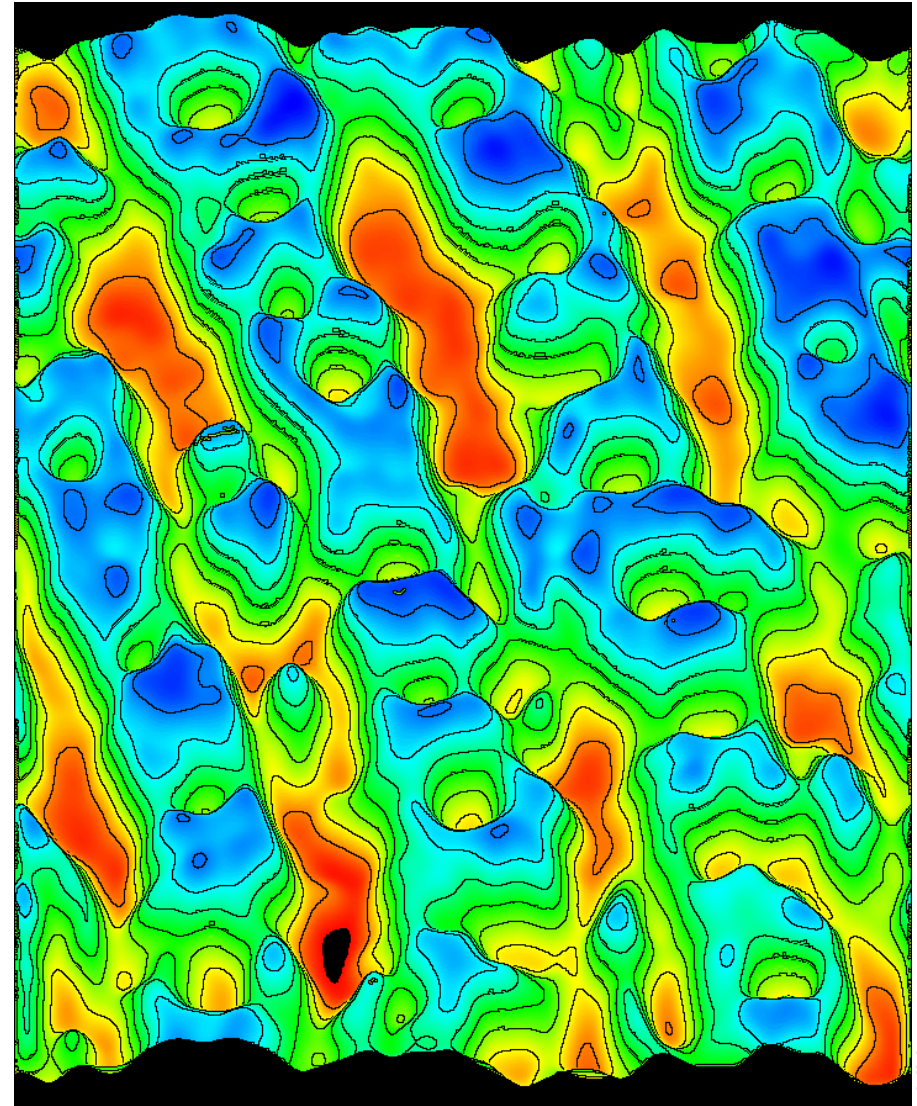Results of Fourier enhancement
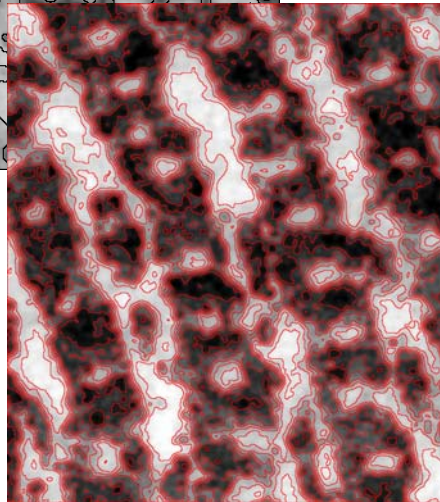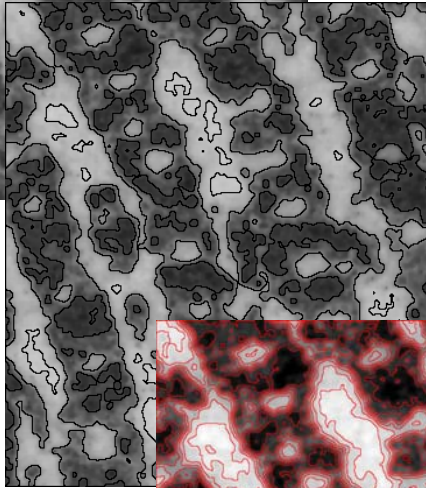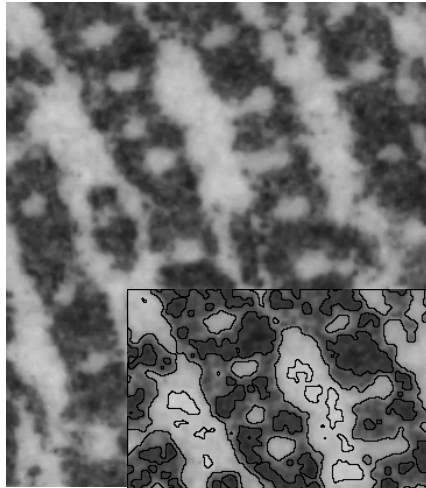in central region

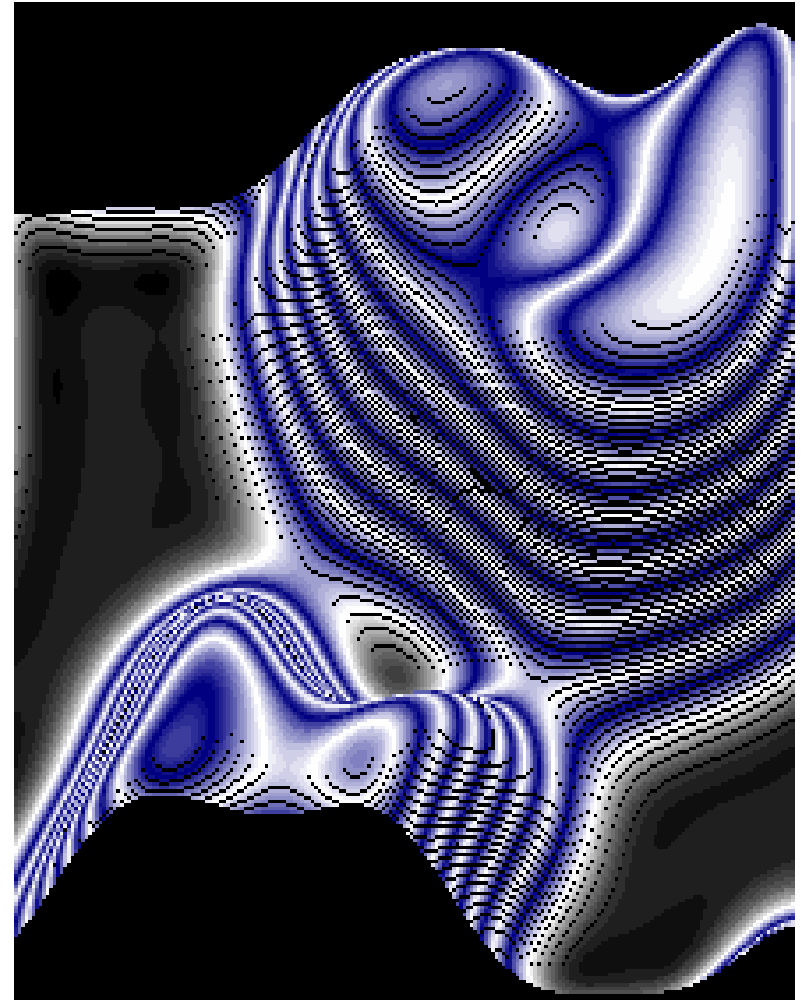Latent fingerprint with severe
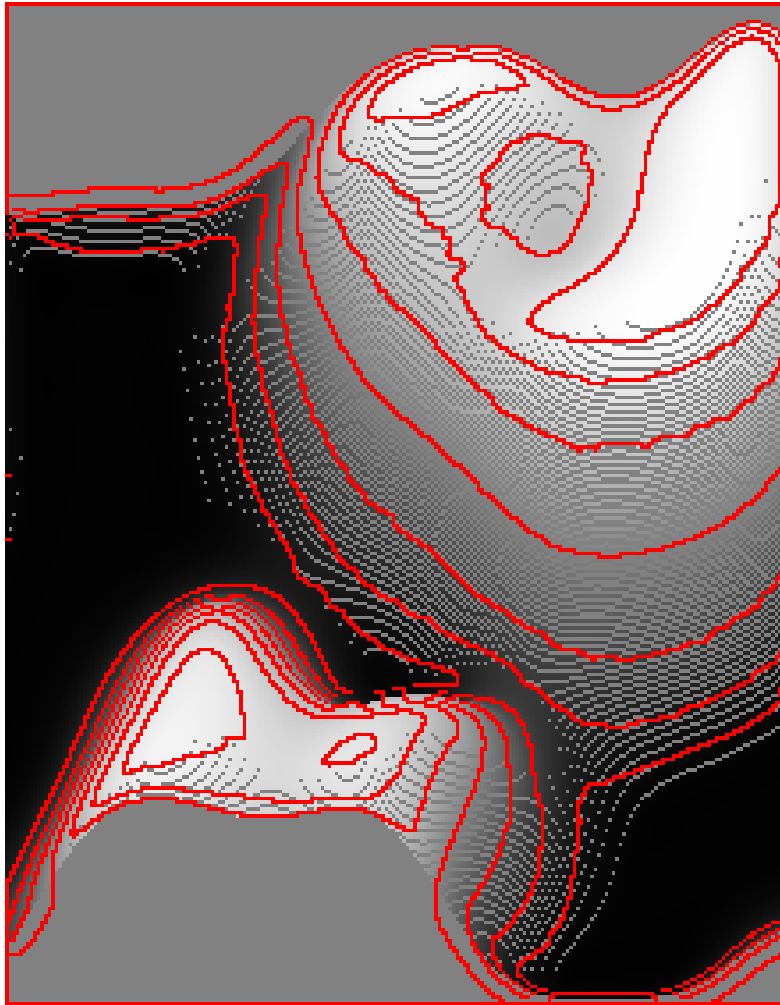interference from a pattern on
the surface material
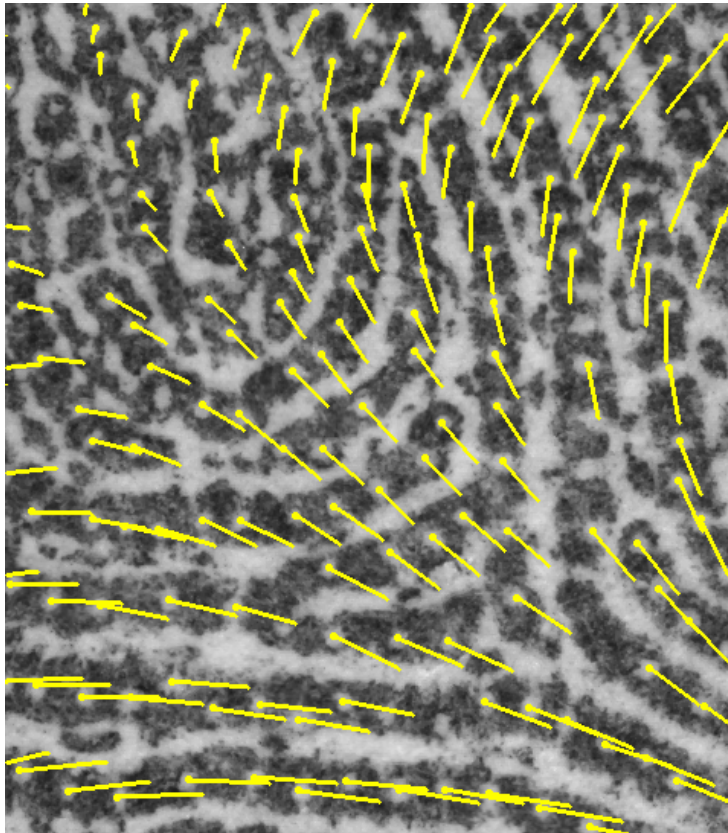

AFP

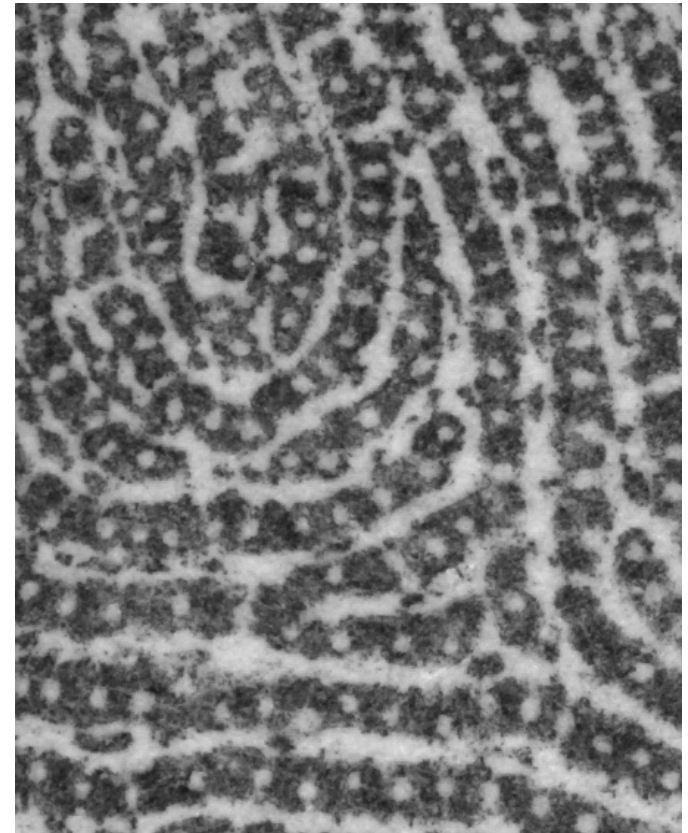# Fingerprint ridge and pore analysis

3D visualization

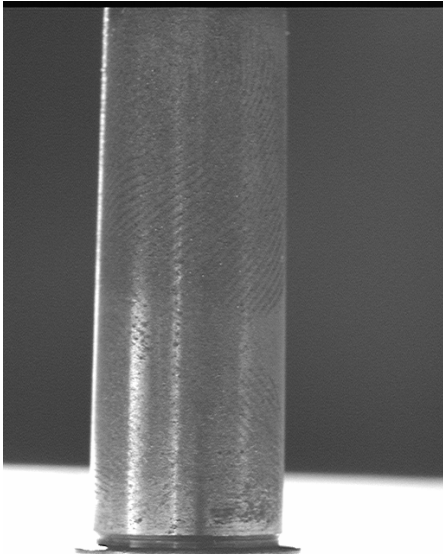# Correcting distortion

Distortion paths

Corrected palm print

Curved surfaces

AFP

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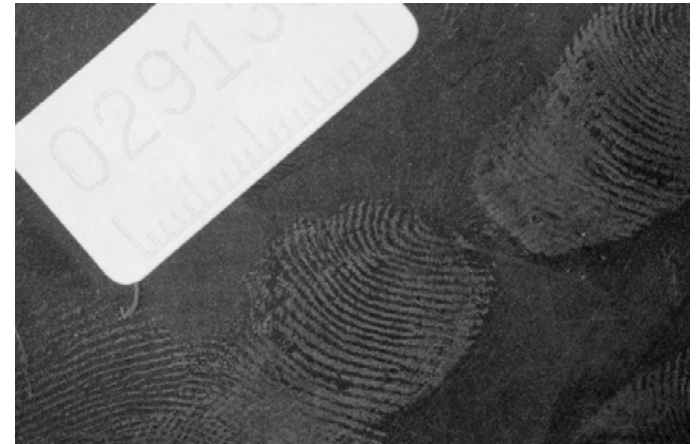
Direct interface to AFIS

Automatic transfer to AFIS at 500dpi
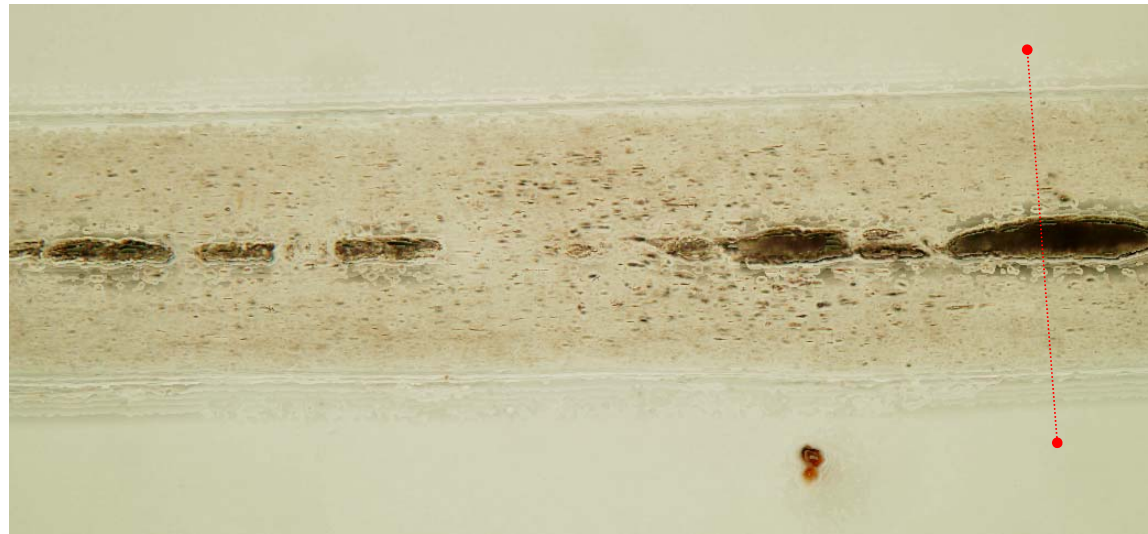

Original high-resolution image
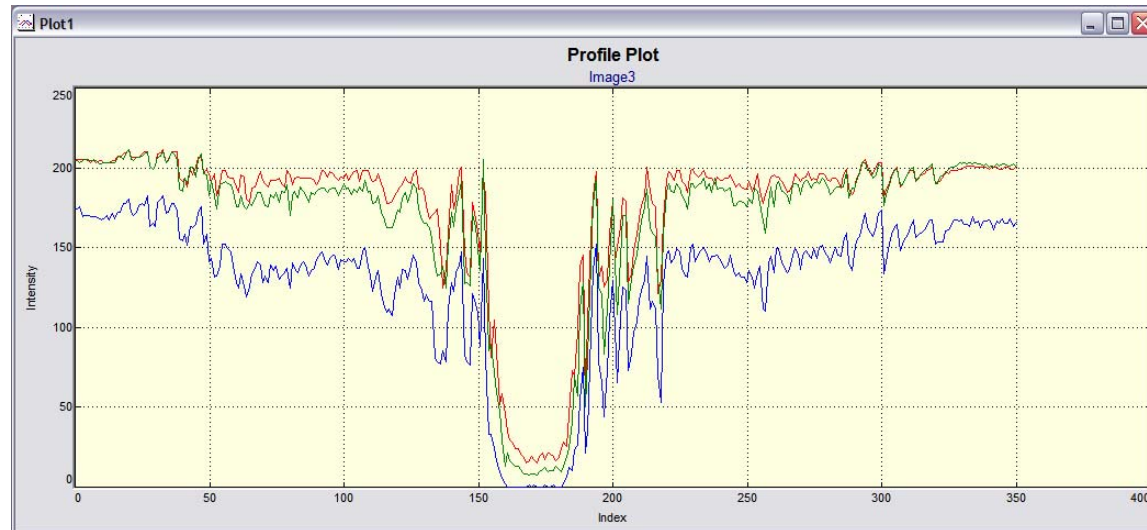
AFP

Print at calibrated size

www.digitaloptics.co.nz

Hair sample analysis

AFP

Digital Optics V++ 5.0