

Forensic microscopy

- Comparison microscope
 - Developed by chemist Philip Gravelle, forensic ballistic pioneer
 - Zeiss, Nikon, Swift M3-F, Ken-A-Vision, Motic
 - Price range \$700 - \$3000
- Evidentiary sample evaluation
 - Physical
 - Rifling striation, firing pin, cartridge, shotshell identification
 - Latent print
 - Biological
 - Palynology (pollen, spores, seeds), soils
 - Hair, fiber



Comparison microscope with 2 stages to compare evidentiary samples side-by-side

Photo, online source

Forensic microscopy | Axiocam

Camera mounted onto microscope



Photo, online source

I have expertise in microscopy with extensive experience using Axiocam & software, although not in a forensic setting

Image acquisition → optimize analysis of evidentiary samples

Documents evidence photographically for legal presentation

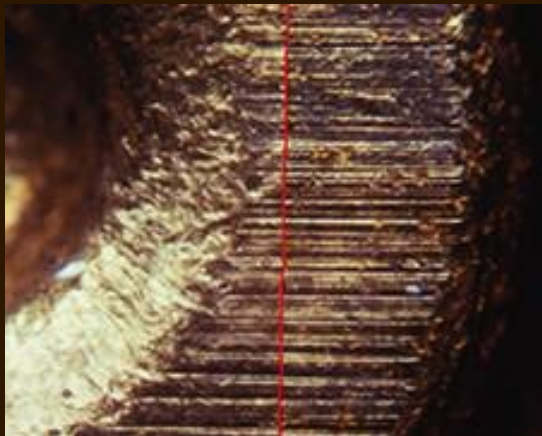
Alternative to comparison microscope

Price range ≈ \$7000 (includes software)

Tip → Be sure Axiocam software is compatible with microscope

Forensic microscopy | *Comparisons*

Marks on test cartridge (left) compared with those of questioned cartridge at 20X power



← Rifling striation detail at higher power

Photos, online source

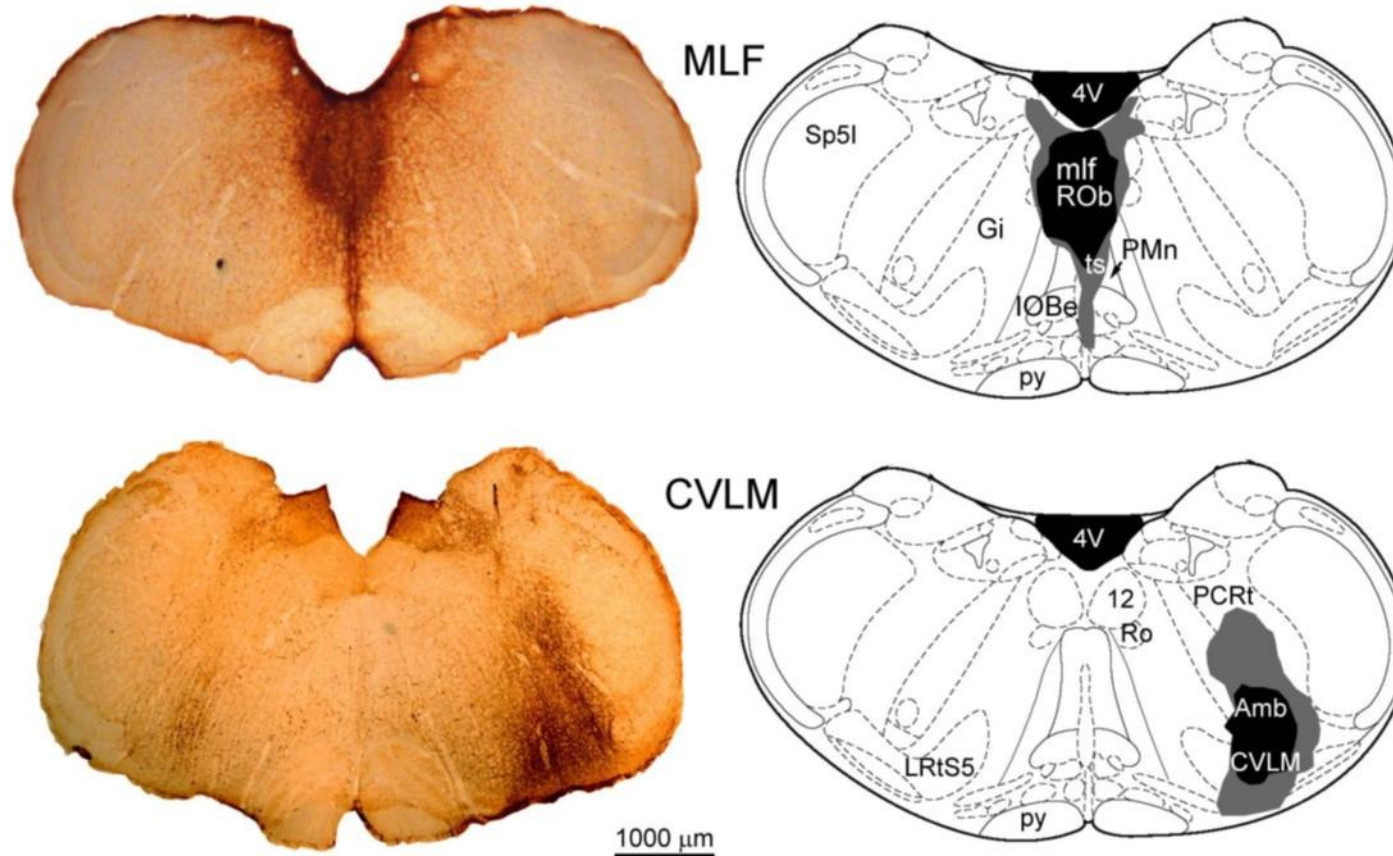
Forensic microscopy | *Axiocam advantage*

- Advantageous because captured images can be optimized
 - Compare side-by-side, overlay & grid
 - Scaling
 - Zoom
 - Lighting adjustment
 - Rotate, translate in 3D
 - Montage images together
- Shared with legal experts for presentation
- Fills gaps in local forensic service

Forensic microscopy | *Image acquisition & analysis examples*

Applicable techniques - subject matter irrelevant in this instance

My images of brains that I montaged & reconstructed using digital photomicrographs from Axiocam



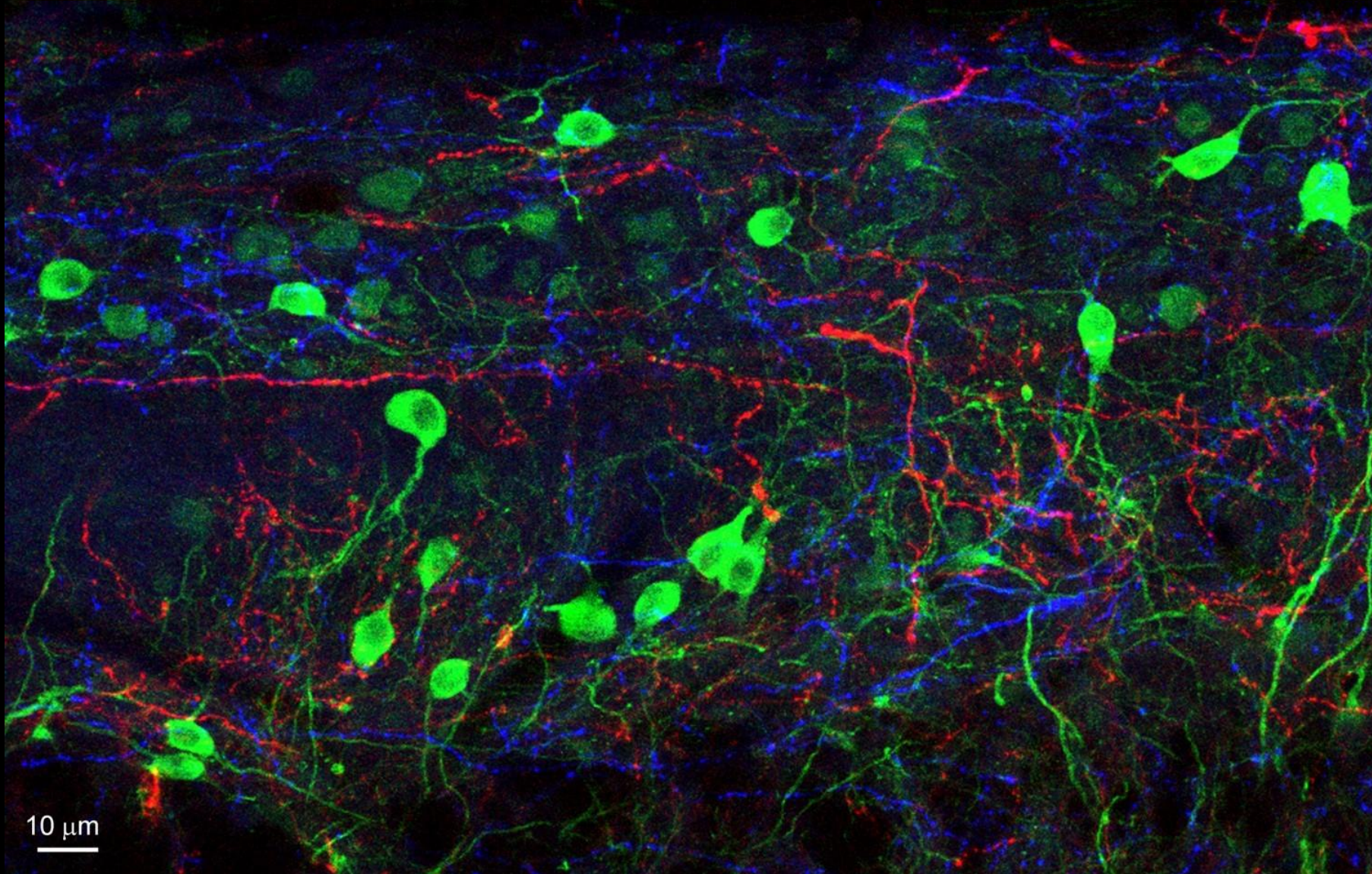
Advantageous way to capture & analyze photographic images: rifling, latent prints, footwear, tire tread, etc.

Fulfills gaps in local services

Forensic microscopy | *Image acquisition & analysis examples*

Applicable techniques - subject irrelevant in this instance

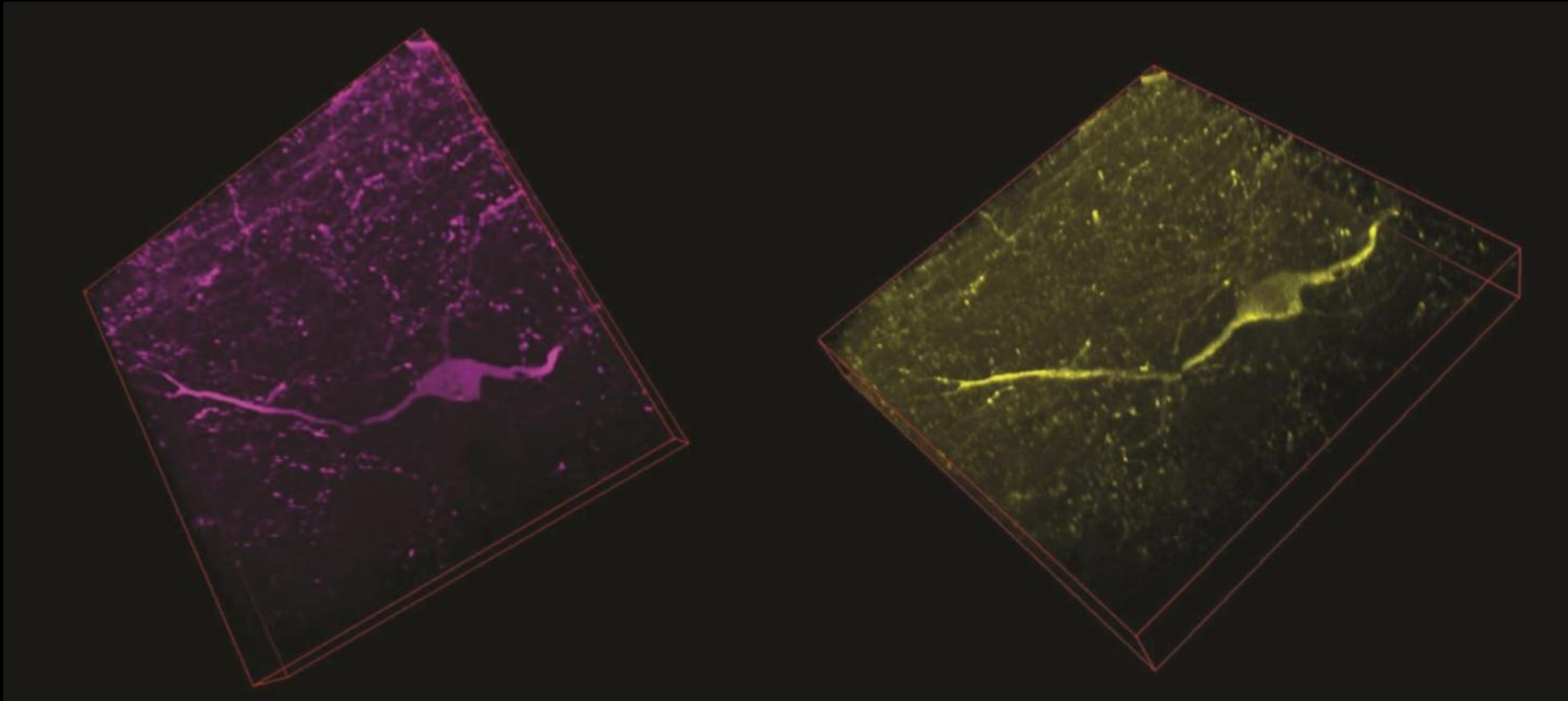
My images from laser confocal microscopy



Forensic microscopy | *Image acquisition & analysis examples*

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