No two fingerprints have ever been found to be the same… even identical twins have different fingerprints

Friction ridge analysis has proven to be a reliable means of identification for more than 100 years

A person can touch an object or surface and not leave a print behind

We are accredited by ANSI-ASQ national Accreditation Board (ANAB) to the ASCLD/LAB International Program

Our SOPs are based on SWGFAST guidelines to be OSAC standards in the future

Many members of our unit have presented at national conferences

All our conclusions are verified
AZAFIS - AZ Automated Fingerprint Identification System

Entry of unknown latents by electronically coding/launching into the state database to uncover a potential match to a known individual. The system allows for identification of thousands of potential investigative leads annually.

- **HITS**
  - On screen comparison of candidate(s) provided from database
  - Database retrieval of candidate exemplar & manual confirmation with magnifier and/or electronic software tools

- **Unsolved Database**
  - Latent prints that are entered into the AZAFIS database & not identified during the original launch remain in the system for a set amount of time and are searched against new incoming records

NGI - Next Generation of Identification

Developed by the FBI, this new system integrates IAFIS and includes the National Palm Print System. NGI is routinely searchable on a nationwide basis.

Manual Comparisons

Requests that latent print evidence be compared to specific individual(s)

- **Process**
  - Retrieve exemplars
  - Determine if latents are of comparative value
  - Use ACE-V methodology
  - Conclusions include one of three: Identification | Exclusion | Inconclusive

- AZAFIS contains ~400K palm records & ~3 million fingerprint records
- NGI contains ~100 million fingerprint records
- 14,000 latents are searched through NGI every month

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<tbody>
<tr>
<td>AFIS HITS</td>
<td>8,618</td>
<td>3,792</td>
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<tr>
<td>COMP ID'S</td>
<td>2,409</td>
<td>729</td>
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• **Proving Priors**
  Comparison of inked prints on court documents. Linking an individual to previous arrests/charges/convictions assists with enhanced sentencing or charging an individual in a specific case.
  ➢ Currently, there is a 10-day turnaround time to assist with the urgency of this type of service.

• **Court Testimony**
  In court, latent print examiners provide testimony as expert witnesses. We report our conclusions about fingerprint comparisons based on the information in the prints, our methodology, and our knowledge, skills, training and experience. Our conclusion is considered an expert opinion; it is up to the jury or judge to use that information to decide the outcome of a case.

• **Training**
  The section has one of the most extensive 2-3 year training programs in the country. The program’s modules include: History, Evidence Processing, Pattern Interpretation/Classification, Inked Fingerprinting, ACE-V Methodology, Supervised AFIS & Manual Comparative Casework, and Simulated Mock Trials. Trainees must pass competency exams prior to release to independent casework.
**THE BASICS**

- **Friction ridge skin** is specialized skin found only on fingers, palms and soles of feet.
- The three **fingerprint patterns** are Loop, Whorl, Arch.
- A **latent print** is a replication friction ridge skin that may be transferred to a surface when touched.
- The **permanent** and **unique** arrangement of the ridges of a latent print allows them to be compared, and identified to one source.
- **Exemplars** or ‘known prints’ are prints recorded from a person whose identity is known, and stored for future reference. They are recorded with ink on paper, or digitally with a Live Scan system.
  - **10 print card** is a rolled recording of each finger, plus a simultaneous touch of the four fingers, and the thumb.
  - **Major case prints** record all areas of friction ridge skin on the fingers and palms to include tips, finger joints, and writer’s palm.
- **Identification** - when an examiner concludes that a latent print and a known print came from the same source.
- **Exclusion** - when an examiner concludes that a latent print came from a different source (individual) than the set of compared known prints.
- **Inconclusive** - when an examiner concludes there is not enough information available in the comparison of two prints to either identify or exclude.

- 60-65% of fingerprint patterns are loops
- 30% of fingerprint patterns are whorls
- 5% of fingerprint patterns are arches
ACE-V: Analysis | Comparison | Evaluation | Verification

- **Analysis**
  - Quality/quantity assessment of information present in latent print
  - Anatomical source, orientation, Level 1 / Level 2 / Level 3 details are observed
  - Substrate, development medium, preservation method, and distortional aspects are observed
  - Determination of comparative values is decided at this phase of ACE

- **Comparison**
  - Comparing the details observed within the analysis phase to reach a conclusion
  - Side-by-side comparison of Level 1, Level 2 & Level 3 details is conducted from the unknown to the known print
  - Noting the consistent agreement of features and any differences

- **Evaluation**
  - Judgments are made about the quality and quantity of the observed details in terms of their clarity and established tolerance levels.
  - Reaching a conclusion of Identification, Exclusion, or Inconclusive

- **Verification**
  - Independent analysis/review of the conclusions by another competent examiner
  - Serves to prove the conclusion is sound, and satisfies the repeatability step of the scientific method.

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**1st Level Detail**
- Anatomic Source
- Pattern Type
- Ridge Flow
- Orientation

**2nd Level Detail**
- Unique Ridge Paths
- Details such as:
  - Bifurcations
  - Ending Ridges

**3rd Level Detail**
- Pores
- Ridge Shape
- Ridge Width
LIMITATIONS OF FINGERPRINTS

THEY CAN
• Tell us if a person touched an object/surface; although not identifying a person to an object does not automatically exclude them from that object/surface
• Prove the identity of a person
• Tell us if a person is not the source of a specific fingerprint

THEY CANNOT
• Tell us when a person touched something
• Tell us if the object was used in a crime
• Tell us the age, gender or race of person leaving the print
• Tell us if a person was not at a crime scene

NEW AND IMPROVED
• Probability Models – for error rates
• AFIS interoperability – between multiple agencies, states and perhaps countries
• NGI – Biometric Technology, helping the speed & accuracy of our results
• CAFIS - Automated search tool for manual comparisons
• OSAC Guidelines- integration of new mandated standards for the entire discipline