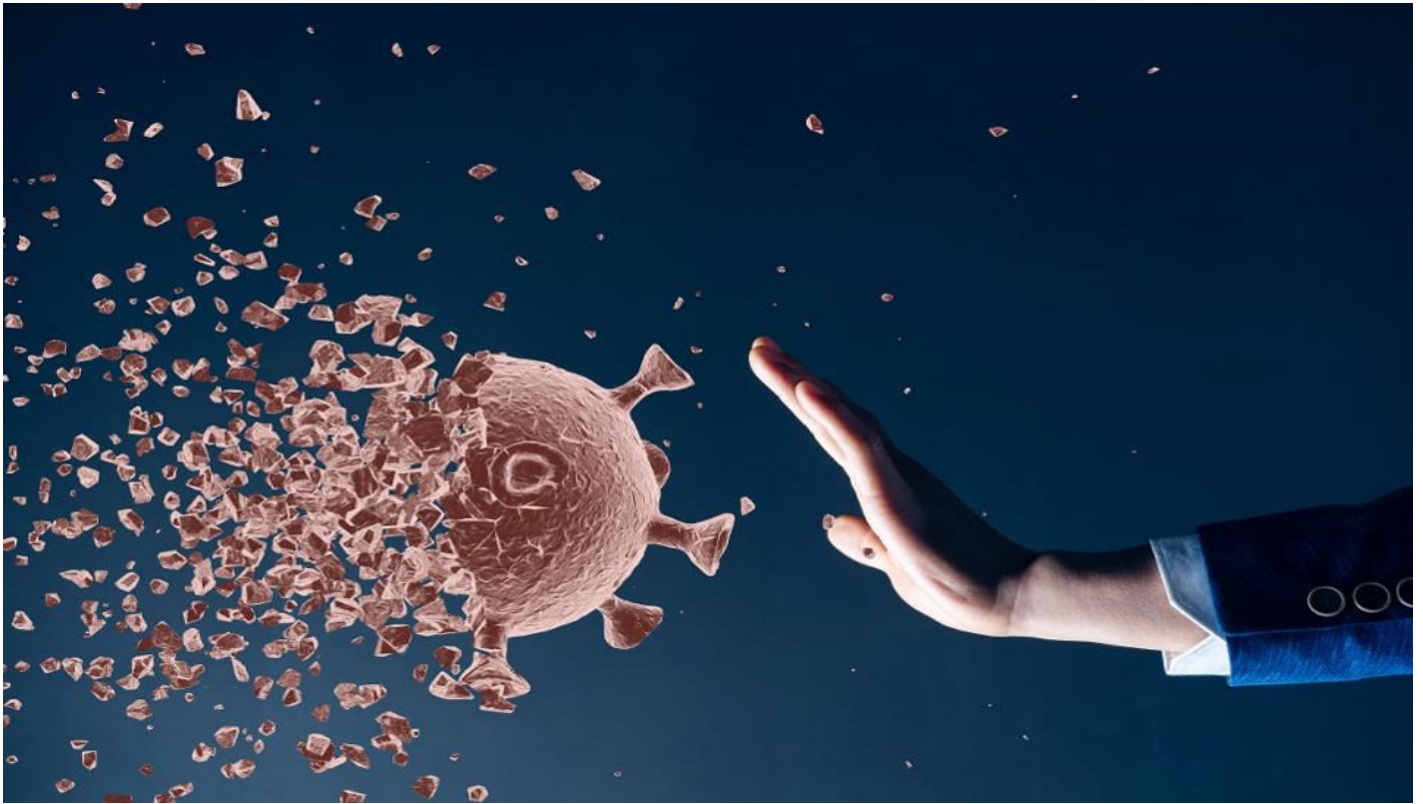


THE IDENTIFIER

[HTTP://WWW.SCIAI.ORG/](http://www.sciai.org/) | SPRING ISSUE | VOLUME 3 ISSUE 2



SCIAI Spring Issue

We hope everyone is staying safe and healthy. These are unprecedented times for us here at the SCIAI and we are struggling to make the conference still available sometime in the (hopefully) near future. Please keep checking the website or Facebook for up to date information on the conference.

INSIDE THIS ISSUE

Letter from the President

Back to the Basics

In the News



LETTER FROM OUR PRESIDENT

Happy Spring!

It is probably unnecessary to say that these are unprecedented times in South Carolina and for the SCIAI. Most of you, like me, fall under the umbrella of essential personnel and are trying to balance standard operating procedures with the new reality of living life under the shadow of COVID 19.

As The Identifier publishes this week, we should be preparing to gather for the 2020 Spring Educational Conference. The decision to postpone the Conference was a hard one to make. It was made prior to the Stay at Home Order being issued, and even prior to most similar events being postponed. When it came down to it, the other officers and I just thought it wasn't worth the risk; not to our presenters, not to our membership, and most certainly, not to our families. While we are tremendously disappointed that we won't be meeting this week, or this spring, I have high hopes to be able to present for the membership the same speakers, with the same topics, in the same venue. I wish I had a timeline, but unfortunately, I don't. If you already registered, we are issuing refunds. If you do not receive yours, please contact me, and we'll take care of it.

What we can accomplish in this time of waiting is to begin

preparing for the next year. Many of the current officers will remain in their positions, or cycle up during the elections at the business meeting. We currently have openings for Secretary, Second Vice President, and with the changing date of the Conference, Treasurer. All of these positions are vital to the continuing survival of the SCIAI, and none are as daunting as they sound. With all of the officers working together, the organization will thrive without a tremendous amount of effort on anyone's part. AND you will receive coveted points toward certification/recertification for each year that you serve as an officer. If you have any questions, please feel free to contact me, or the current officer in the position you are considering.

Everyone please stay safe and well!



Examples of notable symbols within fingerprints submitted to cplex by latent print examiners.

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NIST Funding Manufacturing Institutes to Support Pandemic Response

Jennifer Huergo — The U.S. Department of Commerce’s NIST has opened a funding opportunity for rapid, high-impact projects that support the nation’s response to the COVID-19 pandemic. Using funds appropriated by the Coronavirus Aid, Relief, and Economic Security (CARES) Act signed by President Trump on March 27, 2020, NIST will award these grants through the [NIST Manufacturing USA National Emergency Assistance Program](#) with no cost match requirements.

Funding will be awarded to eligible [Manufacturing USA® institutes](#), a network of 14 public-private partnerships that work with academic and private sector manufacturing organizations on research and development and manufacturing skills training. Each institute focuses on a particular advanced manufacturing specialty such as biofabrication, 3D manufacturing or advanced functional fabrics.

Eligible institutes are invited to propose projects that may include (but are not limited to) medical or nonmedical countermeasures; grants to accelerate production of critical materials, equipment and supplies; additional production facilities; technology road-mapping for pandemic response and recovery; leveraging institute capabilities to strengthen state and community resilience; returning to the U.S. the manufacture of critical conventional drugs and ensuring supply chains for critical materials related to pandemic response; or workforce development and training for manufacturing workers.

Complete award details, including eligibility requirements, are available on [grants.gov](#). Additional information on Manufacturing USA and the Manufacturing USA National Emergency Assistance Program, including informational webinars, may be found at [www.ManufacturingUSA.com](#).
<https://www.nist.gov/news-events/news/2020/03/nist-funding-manufacturing-institutes-support-pandemic-response>

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SC Division of the
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for Identification

IN THE NEWS

Forensic Community stepping up to help fight the pandemic

Crime labs around the world have started to step up and help try to stop the spread of COVID-19 by helping clean and reuse protective gear. Shortages of PPE, N95 masks, are forcing first responders to reuse their limited supply. On March 31, 2020, the CDC released the Crisis Standards of Care Recommendations for N95 Decontamination. Two of the methods of N95 decontamination can be utilized in most of our labs: moist heat and ultraviolet C (UV-C). However, these two methods are not absolute. The UV method is dependent on the lamps intensity and is unlikely to kill all viruses and bacteria due to the multiple layers of the masks. Moist heat must be 140 degrees Fahrenheit with 80% humidity; this causes minimal degradation in the filtration and fit. Nevertheless, the CDC stated that there is still uncertainty with the disinfection efficacy for various pathogens with moist heat. For more information on all care recommendations for N95 masks visit the www.cdc.gov.

UCO Forensic Science Institute donates medical supplies to hospital

As much-needed medical supplies diminish in hospitals due to the COVID-19 virus pandemic, one school, the University of Central Oklahoma Forensic Science Institute donated it's supplies to the local hospital. Since all classes have been canceled or suspended, schools have supplies that are no longer being used by academia and could be life saving in the medical field. Masks, gloves, disposable lab coats and Tyvek suits, are all supplies I hope other schools will consider donating as well.

https://www.edmondsun.com/news/education/uco-forensic-science-institute-donates-medical-supplies-to-hospital/article_726eeb12-6eb7-11ea-8dca-1fdb4a7be85.html

CRIME NEWS

DOJ Awards \$145 Million To Advance Forensic Science *Submitted by Carol A. Clark on January 18, 2020*

WASHINGTON, D.C. — The Justice Department's Office of Justice Programs awarded grants totaling more than \$145 million to fund crime laboratories, decrease DNA backlogs, support basic and applied forensic research, and help law enforcement identify missing persons.

Through the DNA Capacity Enhancement and Backlog Reduction Program, NIJ is awarding more than \$78 million to state and local jurisdictions to process, record, screen and analyze DNA evidence and to enhance the ability of crime labs to process evidence. This ultimately helps reduce the number of forensic DNA database samples awaiting analysis, prevents additional DNA backlogs and helps solve crimes.

NIJ is also making 41 awards totaling \$18.7 million to the Research and Development in Forensic Science for Criminal Justice Purposes program, which directs the findings of scientific research toward the development of accurate, cost-effective and rapid methods for identifying, analyzing and interpreting physical evidence.

Nearly \$1.9 million will support the Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories. These funds will impact laboratory efficiency by providing efficient, accurate, reliable and cost-effective methods for the identification, analysis and interpretation of physical evidence.

Complementing these efforts, the Paul Coverdell Forensic Science Improvement Grants Program is awarding a total of \$27.3 through the program's formula (\$23.2 million) and competitive (\$4.1 million) solicitations. The awards help states and local governments improve the quality and timeliness of forensic services provided by crime laboratories and medical examiner and coroners' offices. Funding will go toward eliminating backlogs and employing and training laboratory personnel and death investigators.

\$5.5 million will fund the National Missing and Unidentified Persons System (NamUs), a national centralized repository and resource center for missing persons and unidentified decedents. The University of North Texas Health Science Center will use the grant to support daily operations of NamUs, along with enhancements and software upgrades to the system.

NIJ will fund the Postconviction Testing of DNA Evidence with more than \$5.4 million to help defray costs associated with identifying and reviewing post-conviction cases to help overturn wrongful convictions.

More than \$5 million was awarded to RTI International to support the Forensic Technology Center of Excellence to provide testing, evaluation and technology assistance to help crime laboratories, forensic service providers and law enforcement combat crime.

Nearly \$1 million in NIJ funding will be used for the Prosecuting Cold Cases using DNA and other Forensic Technologies grant. This program funds the prosecution and reduction of violent crime cold cases.

Under the Strengthening the Medical Examiner-Coroner System Program, 15 state and local agencies will share more than \$1.8 million to help medical examiners conduct forensic death investigations.

A fact sheet is available is here: <https://go.usa.gov/xdcnW>

A searchable list of the awards announced today is available here: <https://go.usa.gov/xVffT>

Information on NIJ's programs is located here: www.nij.ojp.gov, <https://www.namus.gov/> and <https://forensiccoe.org/>

BACK TO THE BASICS

I decided to write a little refresher lesson on the basic principles of fingerprints and the science behind it. All information is taken from *Scientific Principles of Friction Ridge Analysis & Applying Daubert to Latent Fingerprint Identification* Written & Compiled By: Thomas J. Ferriola

Fingerprints are an applied science; we apply scientific knowledge and principles to real-life problems to arrive at conclusions. A characteristic of any field of science is that of allowing the practitioner to make precise statements within the discipline that may be checked or verified by other qualified persons. This is true in “exact” sciences, “descriptive” sciences, and it is also true in “applied” sciences. The fingerprint expert applies knowledge gained through training and experience to reach a conclusion.

Fingerprint identification is based on two primary factors, uniqueness and permanence. But in order to truly understand these factors we must understand human fetal development of friction skin, in that fingerprints form in an embryo during the third and fourth months of fetal life. Although skin covers the entire body, only the fingers and palms of the hands, and the toes and soles of the feet are ridged and called friction skin. Friction skin will remain on the fingers, palms, toes and soles until the skin decomposes after death (the foundation of uniqueness) and in addition understand the subsurface structure of human friction skin (the basis for permanence). This requires some fundamental study of human biological sciences. Thus, the basis for fingerprint identification is firmly rooted in science.

The designation “applied science” extends beyond just the biological foundation of identification, explained as uniqueness and permanence. In order for any identification to be scientifically valid, the entire process of making the identification from start to finish must meet the tests of science. If any element fails to meet scientific standards, then the validity of the identification falls into question.

The whole idea of ridgeology is a scientific examination accompanied by accountability on the part of the examiner. The expert must actually understand the basis for identification and be able to account completely for each identification. It involves Edgeoscopy and Poroscopy. We must be able to explain how and why friction ridge structure differs from individual to individual.

(continued on page 8)

BACK TO THE BASICS (continued from page 7)

Many fingerprint examiners have had only disjointed training in both the scientific foundation and the scientific application of identification principles. Poroscopy (Edmund Locard, 1912) and edgeoscopy (Salil Kumar Chatterjee, 1962), are topics that should be studied by serious students of ridgeology. The shapes and relative positions of sweat pores and the shapes of the edges of the ridges have their origin in fetal development and their physical roots deep in the subsurface structure of the skin. Through study of these features, their formation on the fetus, and their foundation in the dermis and the basal layer of the epidermis, it has been learned that they, like traditional minutiae points, are permanent and unique. And when understood, like minutiae points, they add weight to the conclusion of identification.

In a truly scientific comparison, however, one accepts the idea that not all features in a fingerprint are exactly equal in the weight they contribute to the identification. In ridgeology, it is up to the expert doing the comparison to determine the relative weight of each feature. The expert makes that determination based upon training and experience. As Kurt Kuhn stated, fingerprint identification can be defined as “an applied science that is objective in nature with a subjective opinion being rendered as a conclusion.”

Understandably, one can never have too much training. Training and studying should be an ongoing commitment of the serious, professional examiner. Skill and judgment improves with experience in the comparison of fingerprints. However, no examiner should ever extend an opinion beyond scientific understanding and justification. It is up to the expert doing the comparison to determine what may be used and what may not, and further, to determine what relative weight to give each feature represented in each image. Therefore, if the examiner cannot account for a feature, the examiner cannot give any consideration to that feature in making an identification. No examiner should ever give weight to any feature he or she does not understand or is not able to defend in court.

Scientific Principles of Friction Ridge Analysis & Applying Daubert to Latent Fingerprint Identification Written & Compiled By: Thomas J. Ferriola Identification Technician Sebastian Police Department, Florida

(continued on page 9)

BACK TO THE BASICS *(continued on page 8)*

Match 'Em Up!

- | | |
|---------------------|--|
| A. Morphology | 1. Lie under the friction ridge furrows and supply skin cells to these areas |
| B. Ridgeology | 2. A method of evaluating all friction ridge structure |
| C. Epidermis | 3. A study of the size, shape, and arrangement of pores. |
| D. Secondary ridges | 4. Study of the morphological characteristics of friction ridges. |
| E. Edgeoscopy | 5. A study of the form of things and the relationship between their structures |
| F. Poroscopy | 6. Outer layer of tissue that constantly replaces the cells leaving the surface. |

True or False

- | | |
|--------|--|
| T or F | 1. The unique features of the skin are established between approximately 10.5 and 16 weeks estimated gestational age due to developmental noise. |
| T or F | 2. There are 6 layers of keratinocytes in the friction ridge skin epidermis. |
| T or F | 3. The basal layer of keratinocytes provides the template for the surface ridges and furrows. |
| T or F | 4. Papillary ridges are also friction ridges. |
| T or F | 5. According to Ashbaugh, there are four levels of ridgeology |

Answer Key

- A. 5
- B. 2
- C. 6
- D. 1
- E. 4
- F. 3

True and False

1. True

2. False; There are five layers of Keratinocytes in the friction ridge skin epidermis: stratum basale, stratum spinosum, stratum granulosum, stratum lucidum, and stratum corneum

3. True

4. True

5. False; Ashbaugh describes the examination of friction ridge structure in three levels. First level is the evaluation of the pattern. The next level consists of an examination of the shape and location of minutiae and other accidental characteristics. The final level utilizes both Edgeoscopy and Poroscopy.



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