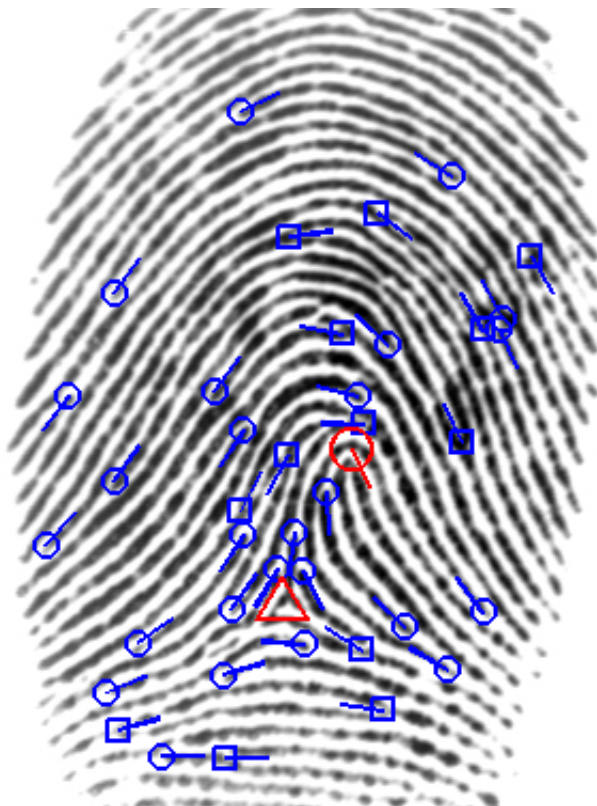


# Stuck on you: Research shows fingerprint accuracy stays the same over time

June 29 2015

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Fingerprint with highlighted minutiae, points used to match fingerprint patterns.  
Credit: Anil Jain

Fingerprints have been used by law enforcement and forensics experts to successfully identify people for more than 100 years. Though fingerprints are assumed to be infallible personal identifiers, there has been little scientific research to prove this claim to be true. As such,

there have been repeated challenges to the admissibility of fingerprint evidence in courts of law.

"We wanted to answer the question that has plagued law enforcement and forensic science for decades: Is fingerprint pattern persistent over time?" said Anil Jain, University Distinguished Professor, computer science and engineering, at Michigan State University. "We have now determined, with multilevel statistical modeling, that fingerprint recognition accuracy remains stable over time."

Jain, along with his former Ph.D. student Soweon Yoon, who is now with the National Institute of Standards and Technology, used fingerprint records of 15,597 subjects apprehended multiple times by the Michigan State Police over a time span varying from five to 12 years.

The results show that fingerprint recognition accuracy doesn't change even as the time between two [fingerprints](#) being compared increases.

The paper by Yoon and Jain, published in the *Proceedings of the National Academy of Sciences*, is the largest and most thorough study of the persistence of Automated Fingerprint Identification Systems, or AFIS, accuracy.

Experts agree that Jain's research addresses one of the most fundamental issues in [fingerprint identification](#) and is of great importance to [law enforcement](#) and forensic science:

- "This study is one of the fundamental pieces of research on a topic that has always been taken for granted. The permanence of fingerprints has not been systematically studied since the seminal work of Herschel was presented in Galton's book: *Finger Prints* (1892, Macmillan & Co.). Although operational practice has shown that the papillary patterns on our hands and feet are

extremely stable and subject to limited changes (apart from scars), the study presented in PNAS provides empirical and statistical evidence." Professor Christophe Champod, Université de Lausanne, Switzerland.


- "This study is a monumental achievement and one that will benefit [forensic science](#) teams worldwide." Capt. Greg Michaud, director of the Forensic Science Division, Michigan State Police.
- "Dr. Jain's analytic quantification on fingerprint persistence of the results significantly support early studies on fingerprint persistence and yet further support legal requirements for peer review and publication." Jim Loudermilk, senior level technologist at the FBI Science and Technology Branch.

**STUCK ON YOU**



June 2001    July 2002    April 2003    Sept. 2007    March 2008    Oct. 2008

**Using 15,597 subjects' fingerprint cards over time periods ranging from five to 12 years, Michigan State University's Anil Jain has proven fingerprints don't change over time.**

#SpartansWill  
 Read more at [jain.egr.msu.edu](http://jain.egr.msu.edu)


**More information:** Longitudinal study of fingerprint recognition, *PNAS*, [www.pnas.org/cgi/doi/10.1073/pnas.1410272112](http://www.pnas.org/cgi/doi/10.1073/pnas.1410272112)

Provided by Michigan State University

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