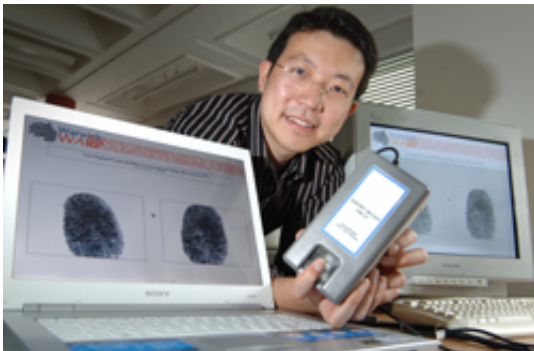


New technology identifies warped fingerprints at warp speed

October 1 2007



Researchers at the University of Warwick have devised a means of identifying partial, distorted, scratched, smudged, or otherwise warped fingerprints in just a few seconds.

Previous techniques have tried to identify a few key features on a finger print and laboriously match them against a database of templates. The University of Warwick researchers consider the entire detailed pattern of each print and transform the topological pattern into a standard co-ordinate system. This allows the researchers to "unwarp" any finger print that has been distorted by smudging, uneven pressure, or other distortion and create a clear digital representation of the fingerprint that can then be mapped on to an "image space" of all other finger prints held on a database.

This unwarping is so effective that it also for the first time allows comparison of the position of individual sweat pores on finger print. This has not previously been possible as the hundreds of pores on an individual finger are so densely packed that the slightest distortion prevented analysts from using them to differentiate finger prints.

The "unwarping" of distorted, damaged or partial prints is not the only benefit of the new technology. The system created by the Warwick researchers is also able to give almost instantaneous results. Instead of laboriously comparing a print against each entry in a database any new print scanned by the system is unwarped and over laid onto a virtual "image space" that includes all the fingerprints available to the database. It does not matter whether it's a thousand or a million fingerprints in the database the result comes back in seconds.

The University of Warwick researchers have set up a spin out company "Warwick Warp" to take the technology to market. This summer they took part in a 3 day exhibition at the London Science Museum to test their technology. Dr Li Wang, Chief Technology Officer at Warwick Warp said:

"We tested our system on nearly 500 visitors from all over the world and achieved 100% accuracy. Many of the visitors were children and children's fingerprints are particularly challenging as they generally contain finer features on a smaller area than adult fingers. Children often tend to twist their finger when placing the finger on the scanner, creating an elastic deformation which provides a great testing ground for our technology. "

Dr Li Wang also said: "Our technology also provides high speed and more importantly, our system's accuracy and speed doesn't degrade when the size of database increases."

The researchers are exploring a number of commercial opportunities for their new technology including commercial access control systems, financial transaction authorization systems and possibly even ID cards passports or border control systems and are now seeking venture capital to assist such commercial developments.

Source: University of Warwick

Citation: New technology identifies warped fingerprints at warp speed (2007, October 1) retrieved 16 May 2024 from <https://phys.org/news/2007-10-technology-warped-fingerprints-warp.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.