



Storing Fingerprints

Storing and identifying the digitized version of millions of fingerprints is an almost inconceivably enormous task. Uncompressed, the FBI's current fingerprint files would consist of 200 terabytes (200,000,000,000,000 bytes). A new piece of mathematics, wavelets, makes data compression fast, relatively routine, and much less expensive so that storage is feasible and retrieval is fast.

Any image is really a function that gives the color and intensity of each pixel. This function can be written as a combination of special functions—the wavelets. The rules for how the wavelets fit together are easier to store and retrieve than the function itself. Wavelets are a twofold improvement over Fourier transforms—another data compression technique based on sines and cosines.

For More Information:

What's Happening in the Mathematical Sciences, Vol. 2, Barry Cipra.



Photograph courtesy of Christopher M. Brislawn, Los Alamos National Lab.



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