



Automatic fingerprint recognition systems /

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Monografía

Contrary to perhaps common belief, even after several decades of research, automatic fingerprint recognition is not a solved problem. New fingerprint sensing technologies, algorithmic advances, and abundant computing power continue to drive advances in this area and to open up new realms of possibility. Automatic Fingerprint Recognition Systems thoroughly surveys and examines advances in fingerprint sensing devices and in algorithms for fingerprint image analysis and matching. After an opening chapter on the history of fingerprint recognition, the book moves into new technologies for inkless sensors, fingerprint image analysis techniques, including fingerprint video analysis, filtering and classification and other areas aimed at fully automatic operation. The book also addresses large-scale fingerprint identification system design, as well as standards. Topics and Features: * Covers numerous areas related to modern automatic fingerprint recognition, not just its history or forensic analysis * Examines advances in fingerprint sensing and fingerprint image filtering and preprocessing * Describes fingerprint feature abstraction, as well as compression and decompression of fingerprint images * Develops ideas related to large-scale, large-database fingerprint matching * Assesses new areas such as security in fingerprint matching and the upcoming common criterion protection profile This authoritative survey provides a unique reference for automatic fingerprint recognition concepts, technologies, and systems. Its editors and contributors are leading researchers and applied R & D developers of this technology. Biometrics and pattern recognition researchers, security professionals, and systems developers will find the work an indispensable resource for current knowledge and technology

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Contenido: 1. History of Fingerprint Pattern Recognition / Simon A. Cole -- 2. Advances in Fingerprint Sensors Using RF Imaging Techniques / Dale R. Setlak -- 3. Fingerprint Quality Assessment / Michael Yi-Sheng Yao, Sharath Pankanti, and Norman Haas -- 4. Dynamic Behavior in Fingerprint Videos / Chitra Dorai, Nalini Ratha, and Ruud Bolle -- 5. Computer Enhancement and Modeling of Fingerprint Images / B.G. Sherlock -- 6. Image Filter Design for Fingerprint Enhancement / Toshio Kamei -- 7. Fingerprint Enhancement / Lin Hong and Anil Jain -- 8. Feature Extraction in Fingerprint Images / Weicheng Shen and M.A. Eshera -- 9. The State of the Art in Fingerprint Classification / R. Cappelli and D. Maio -- 10. Fingerprint Classification by Decision Fusion / Andrew Senior and Ruud Bolle -- 11. Fingerprint Matching / Salil Prabhakar and Anil K. Jain -- 12. Fingerprint Matching Using Distortion-Tolerant Filters / Craig Watson and David Casasent -- 13. Fingerprint Preselection Using Eigenfeatures for a Large-size Database / Toshio Kamei -- 14. Systems Engineering for Large-Scale Fingerprint Systems / Rajiv Khanna -- 15. Multifinger Penetration Rate and ROC Variability for Automatic Fingerprint Identification Systems / James L. Wayman -- 16. Latent Fingerprint Analysis Using an AM-FM Model / Marios Pattichis and Alan Bovik -- 17. Error Rates for Human Latent Fingerprint Examiners / Lyn Haber and Ralph Norman Haber -- 18. Generation of Synthetic Fingerprint Image Databases / Davide Maltoni -- 19. Fingerprint Image Compression and the Wavelet Scalar Quantization Specification / Remigius Onyszczyk and Abdou Youssef -- 20. Security Considerations for the Implementation of Biometric Systems / Colin Soutar -- 21. Fingerprint Interoperability Standards / R. Michael McCabe

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