

Robust Feature Extraction and Temporal Analysis for Partial Fingerprint Identification

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partial fulfillment of the requirements for the degree of

Doctor of Philosophy
in
Computer Engineering

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Description of item under review for fair use: Figure 1-1: A subset of biometric traits: (a) face, (b) fingerprint, (c) iris, (d) hand structure, (e) gait, (f) voice, and (g) signature. Source: D. Maltoni, D. Maio, A. K. Jain, and S. Prabhakar, Handbook of Fingerprint Recognition. Springer-Verlag, 2009.

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Description of item under review for fair use: Figure 1-3: Fingerprint ridges and valleys; (top) sub-surface (from [7]) and (b) surface structure. Source: National Institute of Justice, The Fingerprint Sourcebook. Washington, D.C.: U.S. Department of Justice, 2010.

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Description of item under review for fair use: Figure 1-8: (a) The i3 digID mini optical live-scan device (reproduced from [1]) and (b) diagram of FTIR-based acquisition technology. Source: Fulcrum Biometrics. (2012, September 12). i3 digID Mini. Available: [http:// www.fulcrumbiometrics.com/i3-DigID-Mini-p/101262.htm](http://www.fulcrumbiometrics.com/i3-DigID-Mini-p/101262.htm)

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Description of item under review for fair use: Figure 1-9: Examples of (a) fingerprint dusted with orange powder and photographed with blue cut-off filter (reproduced from [2]) and (b) latent print being transferred with adhesive method. Source: G. Gulick. (2008) Can You Find It? Evidence Technology Magazine. vol. 6, no. 3.

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Description of item under review for fair use: Figure 1-11: Level 1 (top), Level 2 (middle) and Level 3 (bottom) details for features used in fingerprint matching. (Level 3 details reproduced from [4]). Source: D. Maltoni, D. Maio, A. K. Jain, and S. Prabhakar, Handbook of Fingerprint Recognition. London: Springer-Verlag, 2009.

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