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**Engineering : Signal, Image and Speech Processing**

Jiang, R., Al-maadeed, S., Bouridane, A., Crookes, P.D., Beghdadi, A. (Eds.)

# Biometric Security and Privacy

**Opportunities & Challenges in The Big Data Era**

- Includes advances on biometric recognition and fusion, such as deep learning, nonlinear graph embedding, fuzzy approaches, and ensemble learning;
- Addresses new challenges arising from big data, low-quality data and multi-spectral data;
- Introduces new biometric topics such as acoustic biometrics, EOG/ECG, vein patterns, mobile biometrics and cyber security.

This book highlights recent research advances on biometrics using new methods such as deep learning, nonlinear graph embedding, fuzzy approaches, and ensemble learning. Included are special biometric technologies related to privacy and security issues, such as cancellable biometrics and soft biometrics. The book also focuses on several emerging topics such as big data issues, internet of things, medical biometrics, healthcare, and robot-human interactions. The authors show how these new applications have triggered a number of new biometric approaches. They show, as an example, how fuzzy extractor has become a useful tool for key generation in biometric banking, and vein/heart rates from medical records can also be used to identify patients. The contributors cover the topics, their methods, and their applications in depth.

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