

Biometrics Now/Future/Ethics/Law

Introduction: Fingerprint recognition, voice identification, facial recognition, DNA matching, and signature matching are all forms of Biometric technology. These technologies aim to identify a person's identity through unique traits and characteristics. Since biometric characteristics cannot be conjectured or stolen, biometric systems present a superior level of security than usual means of authentication such as passwords or pins.

1. Background

- a. Timeline and brief history of biometrics - A.K. Jain, A. Ross, S. Prabhakar (2004), *An introduction to biometric recognition*, IEEE Transactions on Circuits and Systems for Video Technology 14 (1) 4–20

2. Biometrics Today

- a. Biometric technologies
- b. Biometric applications
- c. Recent advancements in emerging biometrics
 - i. Biometrics based on brain and heart signals - Vascular pattern based biometrics - Kauba C., Prommegger B., Uhl A. (2020) *OpenVein—An Open-Source Modular Multipurpose Finger Vein Scanner Design*.

3. Future of Biometrics

- a. Second generation biometrical systems aims to scan intent - Sutrop, M. and Laas-Mikko, K. (2012), *From Identity Verification to Behavior Prediction: Ethical Implications of Second Generation Biometrics*. Review of Policy Research, 29: 21-36.

4. Implications of current and future Biometric technology

- a. Threat to individuals and organizations
 - i. Dangers to owners of secured items
 - ii. Threat of privacy invasion
 - iii. Identity theft - Park, Eunice, *Your Biometrics: Private or Not?* (December 31, 2019). Orange County Lawyer Magazine, Vol. 62, No. 1, February 2020, at 32.
 - iv. Threat to companies for compliance
 - v. Wrongful accusations and threat of civil liberties if Biometrics mapped intent

5. Ethical Discussion of Biometrics

- a. Possible Effects on Human Dignity - Alterman, A. (2003). “A piece of yourself”: Ethical issues in biometric identification. *Ethics and Information Technology*, 5, 139– 150.

6. Legal Ramifications

a. Constitutional Law Considerations

- i. Right to Privacy - Woodward J.D. (2008) *The Law and the Use of Biometrics*. In: Jain A.K., Flynn P., Ross A.A. (eds) *Handbook of Biometrics*. Springer, Boston, MA
- ii. 4th and 5th Amendments

b. Laws Regulating Biometric Data

- i. BIPA
- ii. California Statutes
 1. CCPA

- c. The need for a global standard of laws that regulate biometrics - Pope, C. (2018). *Biometric data collection in an unprotected world: Exploring the need for federal legislation protecting biometric data*. *Journal of Law and Policy*, 26(2), 769-804.

7. Conclusion