Special Issue

AI-Driven Multimodal Biometrics for Enhanced Personal Authentication

Message from the Guest Editors

Biometric technologies have rapidly evolved into mission-critical infrastructure for authentication, identity verification, and access control across consumer, enterprise, and public sectors. Modern systems increasingly use multimodal fusion (fingerprints, face, iris, voice, gait, vein, behavior) to boost accuracy, cut failure rates, and improve resilience to variability. Soft biometrics (e.g., age, gender, emotion) enrich recognition but raise issues of fairness, privacy, and social impact. At scale, systems face threats such as spoofing, deepfakes, adversarial examples, and template inversion. Trustworthy biometrics require advances in liveness detection, explainable AI, privacy-preserving learning, and rigorous evaluation. Equally vital are hardware–software co-design, curated datasets with governance, and benchmarks reflecting real-world conditions. This Special Issue seeks contributions that link algorithmic innovation to system-level performance, reproducibility, and ethical/legal compliance. We welcome research, surveys, benchmarks, and case studies toward biometrics that are accurate, robust, privacy-aware, fair, and regulation-ready.

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