Secure Access Control Over Wide Area Network (SWAN)

NTNU

Motivation

- The SWAN project will research and develop countermeasures and innovative technologies that lead to a usable, economic, and privacy-preserving access control platform based on biometrics
- Our research will allow the authentication of banking transactions and secure access to services over broadband and mobile networks, using biometric identifiers

Privacy Preserving Biometrics

- Development of pre-processing techniques for four biometric characteristics
- Development of quality estimation and enhancement techniques
- Development of privacy preserving techniques
- Development of comparison techniques on both plain and privacy preserving techniques

Information Fusion

- Investigate potential for fusion at different levels of four biometric modalities obtained through smartphone sensors: 1) Face, 2) Voice, 3) Finger photo, 4) Eyes
- Specify relevant fusion combinations of the four mentioned modalities, as well as fusion with non-biometric information
- Investigate to what degree subjective Bayesian classifiers can enhance decision making

Presentation Attack Detection

- Evaluate the vulnerability to presentation attacks, also known as spoofing, of reference recognition algorithms for each biometric mode
- Develop and evaluate presentation attack detection algorithms to mitigate presentation attacks for the biometric modalities: Face, Voice, Finger photo and Eyes

Transaction Protocols

- Develop end-to-end privacy preserving biometric transaction authentication protocols suitable for use in online banking transactions and other online services which require strong authentication methods
- Evaluation of developed biometric transaction authentication protocols according to different metrics: Accuracy, Efficiency and Security Aspects

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