

# SpeechXRays presentation

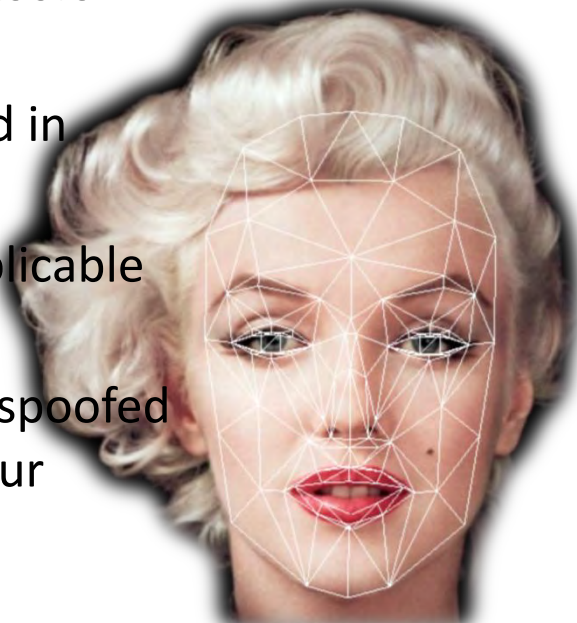
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**Multi-channel biometrics combining acoustic  
and machine vision analysis of speech,  
lips movement and face**

- **SpeechXRays** project will **develop** and **test** a user recognition platform based on voice acoustics analysis and audio-visual identity verification in real-life environments.
  - **Advantages:**
  - **Security:** high accuracy solution, due to the effective combination of speaker recognition, face biometrics and their combination.
  - **Privacy:** biometric data stored in the device (or in a private cloud under the responsibility of the data subject).
  - **Cost-efficiency:** use of standard embedded microphone and cameras (smartphones, laptops).

- Develop and test a cost effective, convenient, privacy preserving multimodal biometrics solution based on acoustic and machine vision analysis of speech, lips movement and face.
- Implement the novel biometrics solution in a broadband network, giving access to smart services running over networks with state-of-the-art security, avoiding single points of failure.
- Guarantee interoperability and portability between systems and services.

- several biometric modalities for access control purposes.
  - Low cost solutions based on existing embedded sensors (camera-based face recognition)
  - New sensors (fingerprint readers) can be embedded in laptops and smartphones with additional costs
  - Iris recognition promising technology not easily applicable to mobile devices
  - all these systems (fingerprint, face, and iris) can be spoofed by fake biometrics as simple as high resolution colour printouts.



- The most convenient and cost-effective biometric modality is voice,
  - easily captured on a mobile device
  - noise robust to the human ear.
- commercial solutions fail
  - No required accuracy levels
  - very sensitive to ambient noise,
- SpeechXRays will outperform state-of-the-art solutions in voice/face solutions

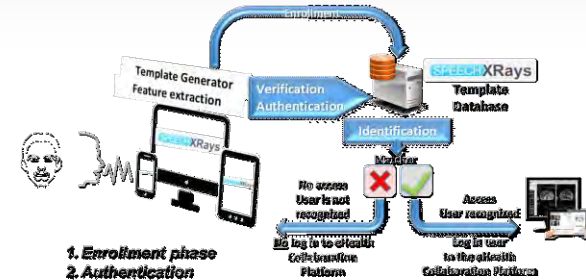


- growth driven by fingerprint sensors in high-end smartphones and tablets. (Goode Intelligence)
  - innovative biometric technologies
  - FIDO (Fast Identity Online)-enabled solutions,
  - proprietary-device OEM led initiatives such as Touch ID,
  - integration into multi-factor authentication platforms.
- inclusion in mobile devices 7.2Bn EUR worth of revenue by 2018 (Biometrics Group)
  - unlocking mobile devices through security applications,
  - multi-factor authentication services a
  - instant electronic payments.

- consumer preference (Unisys):
  - voice recognition (32 percent),
  - fingerprints (27 percent),
  - facial scan (20 percent),
  - hand geometry (12 percent),
  - and iris scan (10 percent).
- As a result, the firm projects that voice recognition will be widely adopted.



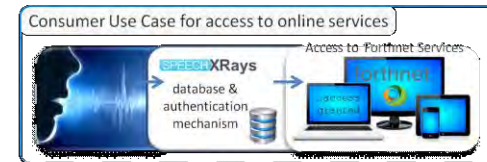
- The project will test the solution in three **real-life use cases** requiring various degrees of security: **consumer use case** (low security), **eHealth use case** (medium security) and **workforce use case** (high security). Scenarios will demonstrate an authentication over a secure broadband network giving access to specific services.



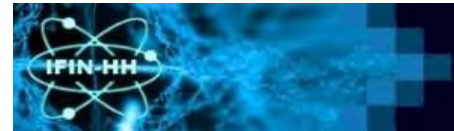
eHealth Use Case



Workforce Use Case



- 6 industrial / SME partners (including technology suppliers and end-users)  
4 research / academic organizations





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