



# Biometric Research in DMCS

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DMCS

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# Biometric Recognition

Personal recognition based on „**who You are**” as opposed to „**what You know**” (PIN) or „**what You posses**” (ID card)



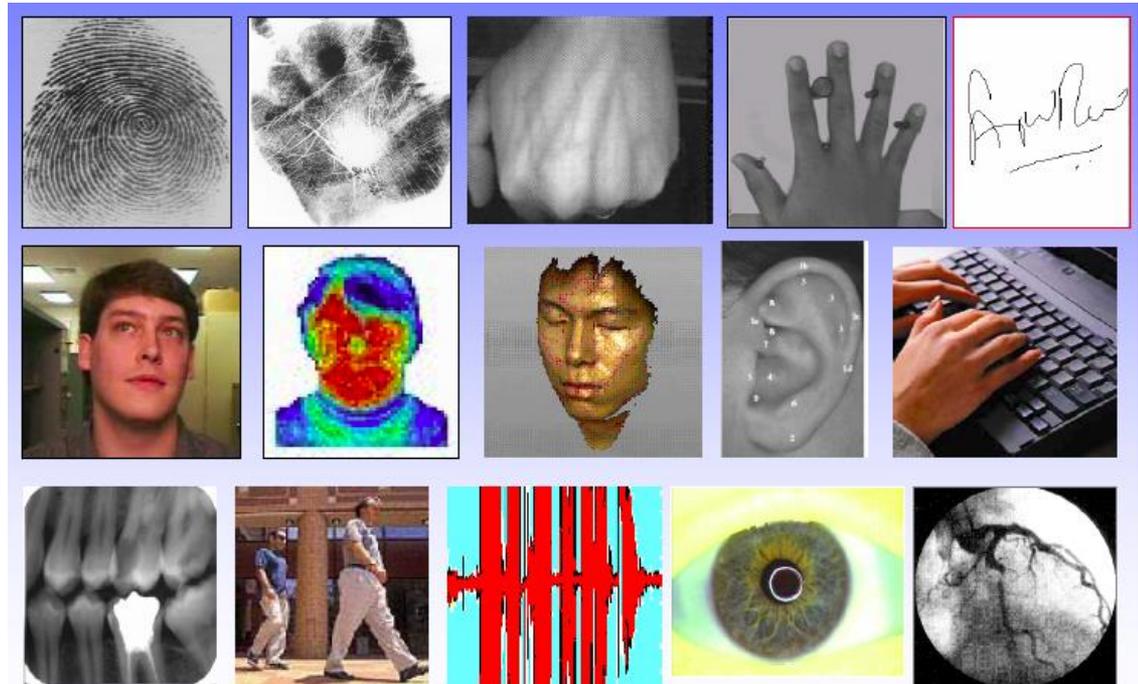
Recognition of a person by his body, then linking its digital representation to an externally established „identity” – identity management



# Biometric Traits

## Physical characteristics:

- Iris
- Retina
- Vein pattern
- Hand geometry
- Face
- Fingerprint



## Behavioral

## characteristics:

- Keystroke dynamics
- Signature dynamics
- Gait

# Biometric Applications



Iris: Frankfurt Airport



Face: Surveillance Applications



Keyless ignition: Audi A8



Hand Geometry: Ben Gurion Airport



Fingerprint: US-VISIT program



Finger Vein: Accessing ATMs in Japan

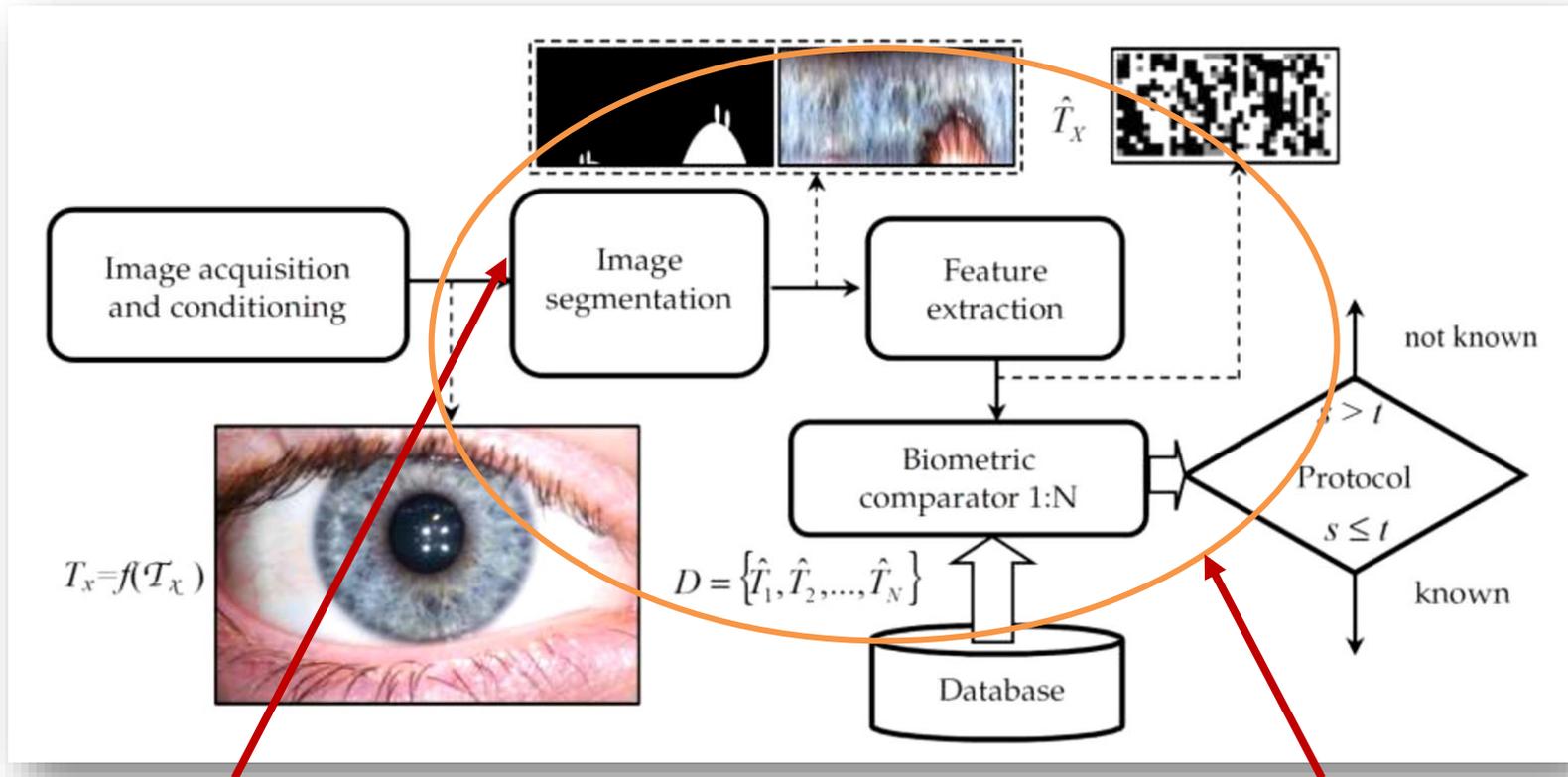
# How we started



The device was awarded in total by 7 prizes on several international inventions contests

# Our biometric research

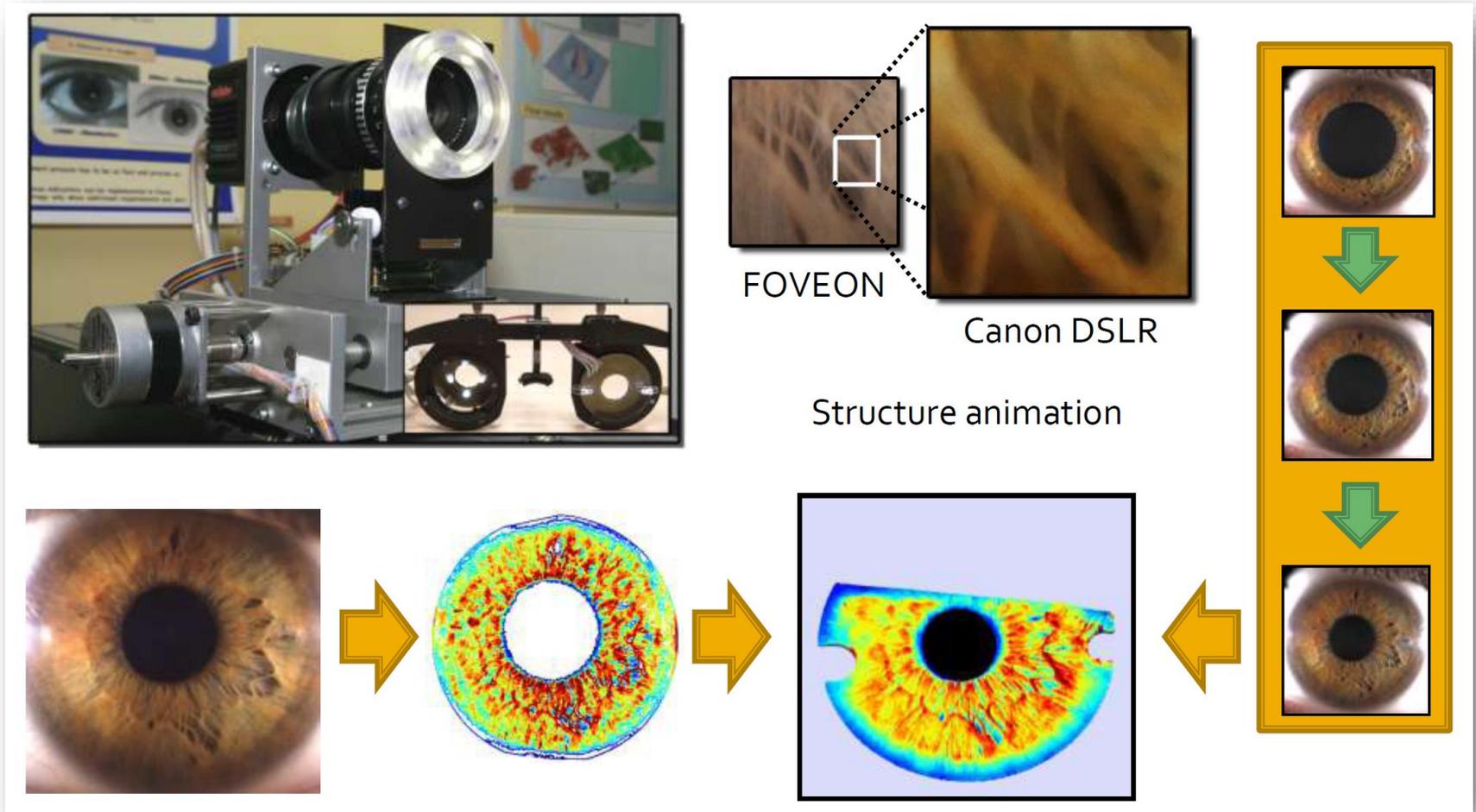
## Iris-based authentication



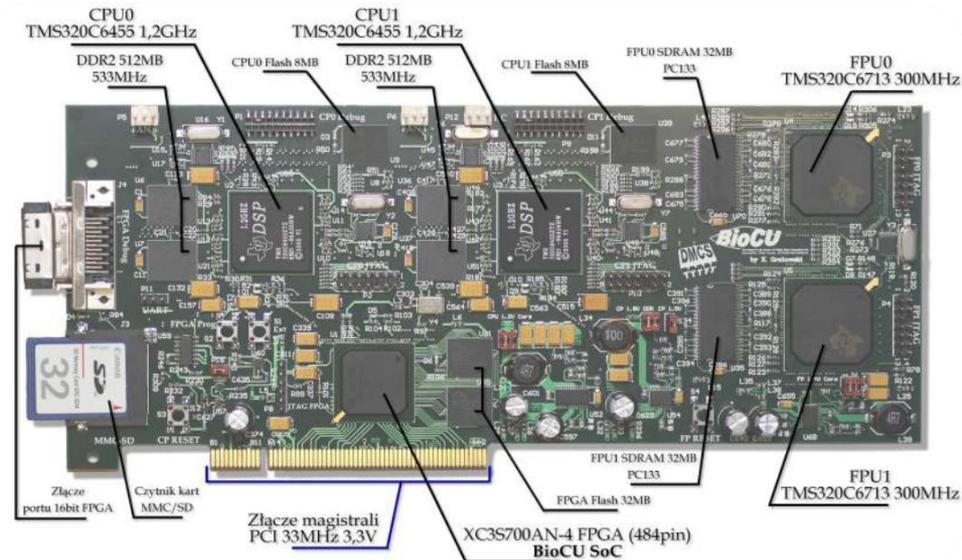
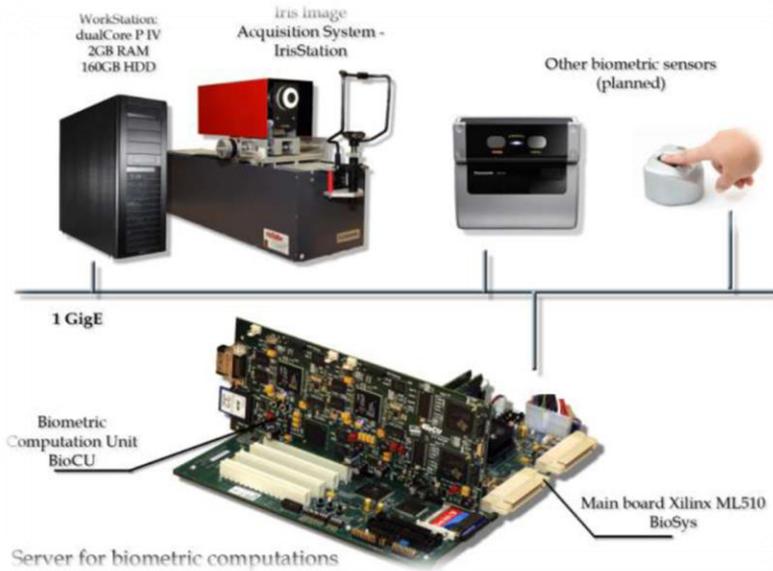
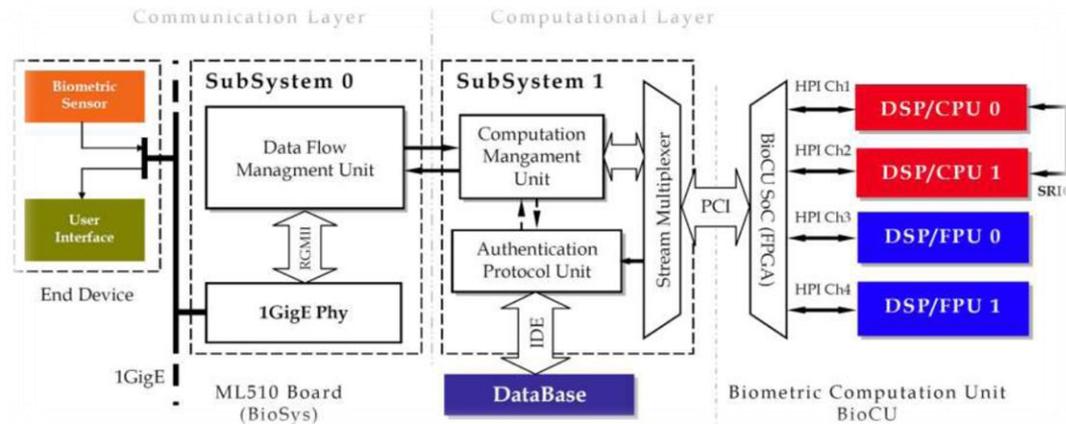
**2<sup>nd</sup> place in the world contest: Noisy Iris Challenge Evaluation, Part I**

**8th place in the world contest: Noisy Iris Challenge Evaluation, Part II**

# Vision systems for biometric purposes



# Image processing hardware platforms



# Biometric Recognition - IPASs



- Image processing using SoC – OMAP
- Communication layer – Linux
- Powering PoE, etc.

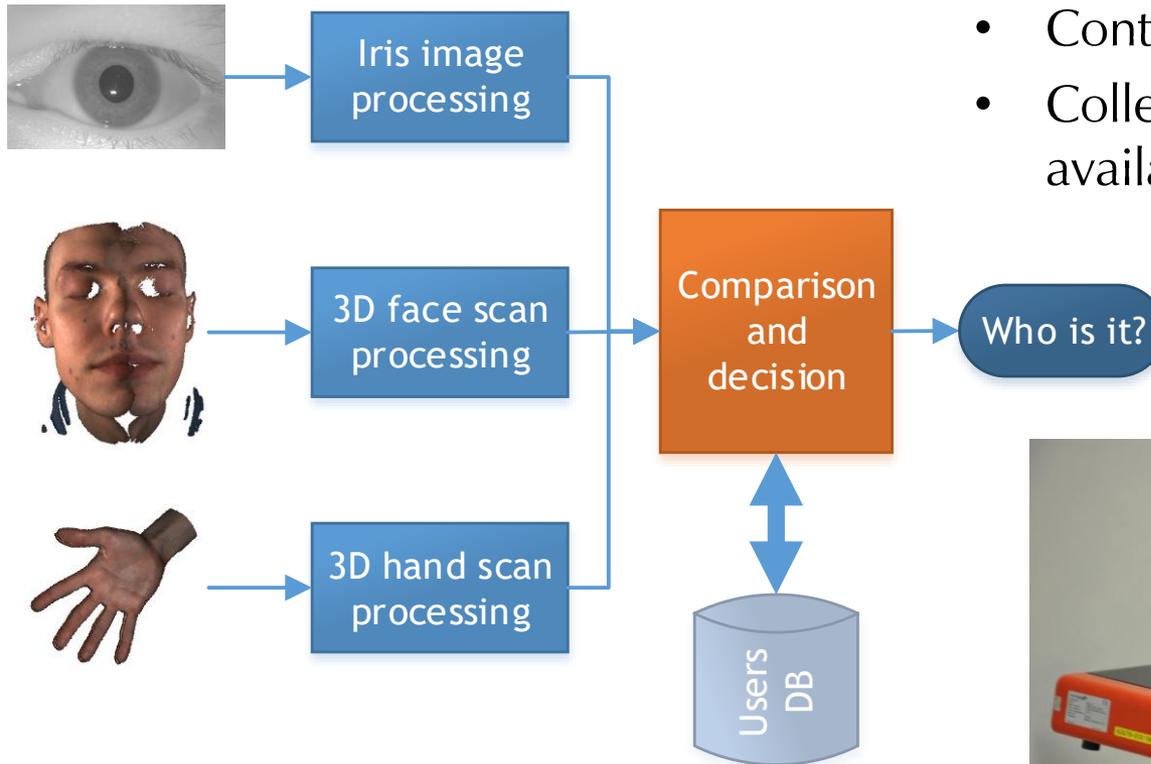


# Ongoing projects

- Multimodal Biometric System (MBS) – NCN Grant,  
~0.6 MPLN, W. Sankowski
- Non-COoperative bioMetric system for Positive AuthenticaTion (COMPACT) – LIDER2013 NCBR Grant,  
~1.2 MPLN, K. Grabowski

# MBS

## Multimodal Biometric System (W. Sankowski)



- 3D data acquisition station
- Contactless identification
- Collected database publicly available

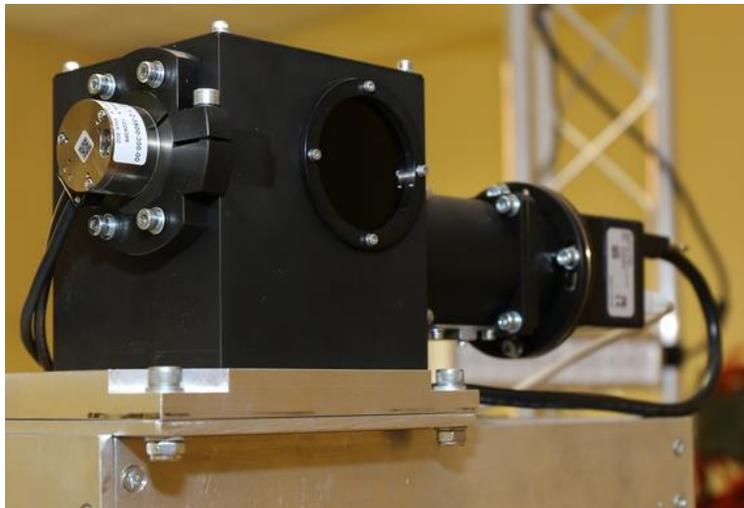




# COMPACT

Non-Cooperative Biometric System (K. Grabowski)

Advanced vision system was developed, which can acquire images from subjects at-a-distance and on-the-move.



PL412340, PCT/IB2016/052779 „Driven unit, biometric acquisition system and method for acquisition of biometric features” patent pending



# Summary

## Some numbers:

- 4 national funded projects
- over 30 papers including 3 from philadelphia list
- over 130 citations (RG)
- 7 international awards
- 2 top world academic algorithms for biometric authentication
- one polish and one international patent pending

## Contributors:

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W. Sankowski	P. Nowak
R. Szewczyk	K. Grabowski



# Thank You



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