Sport Event Identity Management

Dr. Şule Yildirim Yayilgan & Kamer Vishi

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NID-Conference

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SPEED members: Asbjørn Hovsto - Portahead, Elham Rajabian - HIG

Outline

- Introduction to sport event identity management

- Security, danger for identity theft and mis-use of information (e.g. biometrics data)

- Development of technology and methods

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Introduction to SPort EvEnt iDentity management (SPEED)

- This presentation is based on work in progress – about the SPEED project funded by Regional Forskning Fondet

- The goal of the project is:
  - to understand the processes related to sport event management and understand state of the art for the Birken case
  - to define threats and security holes in existing processes and identify risks
  - to define needs for identity management in existing processes and identify risks
  - to identify which new technology, services and processes can be used to mitigate the risks and meet the needs

Partners of SPEED project:
Birkebeinerrennet
Portahead as
Haakon Wiig as
Åmot Kommune
TrillRundt as
NHO Reiseliv

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Existing Processes

Related to:

- The pre-travel and post-travel of the event, especially day before and day after the race.
- Registration
- The interactions between Birken organizers\personnel\vounteers and the athletes
- The athletes/user profiling
- The athletes running/biking/cycling
- Improving the logistics supply chain of housing, transport, food and voluntary workers
- The preferences which the athletes have, e.g. special diets, medicines, need of equipment and other to use at the event (food, skiing wax suitable for the weather)

Existing Processes/Needs/New services

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Enrollment/envelop/start lists
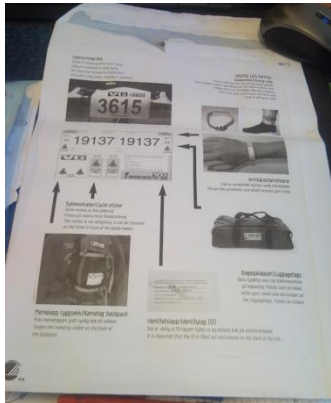
startnummerposen

Deltakerkort 2011

Sykkeloblat

Sekkelapp

Sykkellapp

Startlister on web

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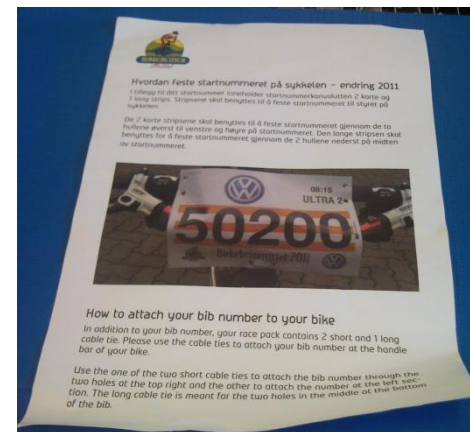
Biker, runner, skier in the mountain

Live camera Løypa

. Can these cameras be used for monitoring of security and medical situations?

. Does he need any medical help?

✓How to track medical Equipment?

✓Alarms-higher pulse than expected, give an alarm to the athlete?

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SMS Tjenesten

Automatic sms sending in various languages
. Bus arrival information
. Information about changes

BIRKEBEINERRENNET 2011

Kodenavn «Birken»

SMS tjeneste Birkebeinerrennet

Birken total «startnummer» til 1980
(eks Birken total 14485)
• Gir anvendt tid ved alle passeringer + i mål
• Gir maksimaltid i mål + etternavn og anvendt tid på de fem beste i aktuell klasse.
Pris kr 50,- totalt pr startnummer.

Birken «startnummer» til 1980
(eks Birken 14485)
• Gir anvendt tid ved alle passeringer + mål **Pris kr 20,-** totalt pr. startnummer. Passer for publikum som ønsker å følge en eller flere deltakere gjennom løypa.

Birken tidspunkt «startnummer» til 1980
(eks Birken tidspunkt 14485)
• Gir frøken-ur tid ved alle passeringer + mål **Pris kr 20,- totalt pr startnummer.** Passer for publikum som ønsker å følge en eller flere deltakere gjennom løypa.

Birken makstid «klasse» til 1980
(eks Birken makstid M65)
• Gir maksimaltid i mål + etternavn og anvendt tid på de fem beste i aktuell klasse.
Pris kr 20,-

Birken Kvarstad «klasse» til 1980
(eks Birken Kvarstad M35)
• Gir uoffisiell maksimaltid + etternavn og anvendt tid på de fem beste i aktuelle klasse ved Kvarstad.
Pris kr 20,-

Birken Sjusjøen «klasse» til 1980
(eks Birken Sjusjøen M35)
• Gir uoffisiell maksimaltid + etternavn og anvendt tid på de fem beste i aktuelle klasse ved Sjusjøen.
Pris kr 20,-

Birken nr «fornavn etternavn» til 1980
(eks Birken nr ola hansen)
• Gir startnummer, pulje, fornavn, etternavn, starttid, hentested for startnummer
Pris kr 20,-

✓SMS-positions of the buses from Lillehammer to Rena

✓Personalised info for the athletes, e.g. diet food, transport, language, guidance.

✓Problem for capacity on mobile phone network

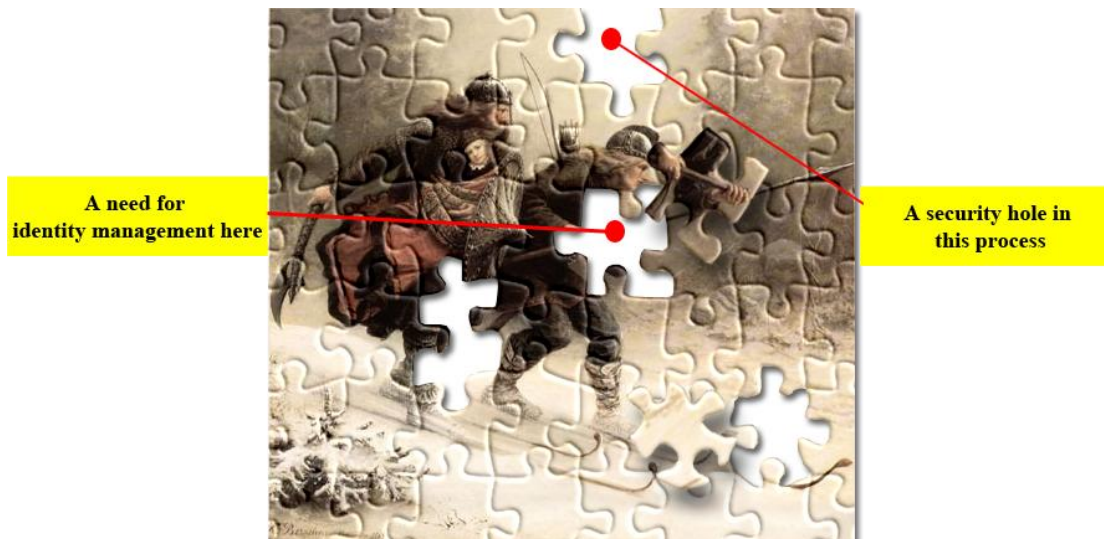Dr. Şule Yildirim Yayilgan & Kamer Vishi

Busses

- Tickets; prepayment, but no real control by the bus drivers
- Who is on the bus, when will the bus arrive my place, what if an accident happens with the bus?
- SMS-positions of the buses from Lillehammer to Rena
- How to map/park equipment trails close to the buses. Busses might arrive late (bring bicycles/luggage direct out of the goal area to more convenient pick-up points)
- Environmental footprint; how to reduce the use of private cars and parking in Lillehammer Centre
- Accomodation check-in: whoever has checked in Rena for accommodation will not be on the bus.

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Parking

- How to map/park equipment trails close to the buses. Busses might arrive late. How people to find their bike/ski? (Authentication or another mechanism here?)

- Environmental footprint; how to reduce the use of private cars and parking in Lillehammer Centre

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Threats, security holes, identity management, associated risks

A need for identity management here

A security hole in this process

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The major areas of concern in sport event management

- Law compliance: dealing with lawsuits that may arise, negotiating with contacts.

- Security personnel and other employees (needs legal skills).

- Emergency plans for both sport and non-sport events – ambulance service.

- Identity theft and misuse: Sensitive information handling, data leakage, related risks.

- Information system.

- Identity management.

Law Complience- Accident

Turkish national skier dies in training accident

Hurriyet.com.tr

Aslı Nemutlu was a student studying in Istanbul. DHA photo

Aslı Nemutlu, an 18-year-old member of Turkey's national Alpine skiing team, died during a training accident in the eastern province of Erzurum today.

Nemutlu was training on a slope at Erzurum's Konaklı ski center at around 10 a.m. when she fell and broke her neck.

Members of the Alpine skiing team were on the mountain to train for the Turkey Youth Ski Championship, which will be held Jan. 14-15. One of Nemutlu's skis came loose while she was skiing down a slope, causing her to fall and skid for a number of meters before finally coming to a halt.

Nemutlu was rushed to the Erzurum Training and Research Hospital but could not be saved.

January/12/2012

Nick Zoricic Dead: Ski Racer Dies During Skicross Crash In World Cup Event (VIDEO)

GRAHAM DUNBAR | 03/10/12 07:07 PM ET | AP

Follow ➤ Video , Nick Zoricic , Nick Zoricic Dead , Nick Zoricic Death , Nick Zoricic Accident , Nick Zoricic Crash , Nick Zoricic Dies , Nick Zoricic Race , Nick-Zoricic-Dead-Accident , Nick-Zoricic-Skiing-Crash , Sports News

SHARE THIS STORY

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| 435 | 22 | 164 | 8 |

are tweet email +1

GENEVA — Canada and the action-sports world endured their second tragedy in two months Saturday with the death of skicross racer Nik Zoricic, who suffered head injuries after crashing into the nets on the side of the course near the final jump of a race in Switzerland.

Ski authorities called it a "freak accident," much the same way they labeled the fatal accident of

Security personnel and other employees

Lillehammer

Håkons Hall

Emergency Plans

Emergence Plans: Crowd surveillance with UAV swarm

DFRC quadcopter Micro-UAV

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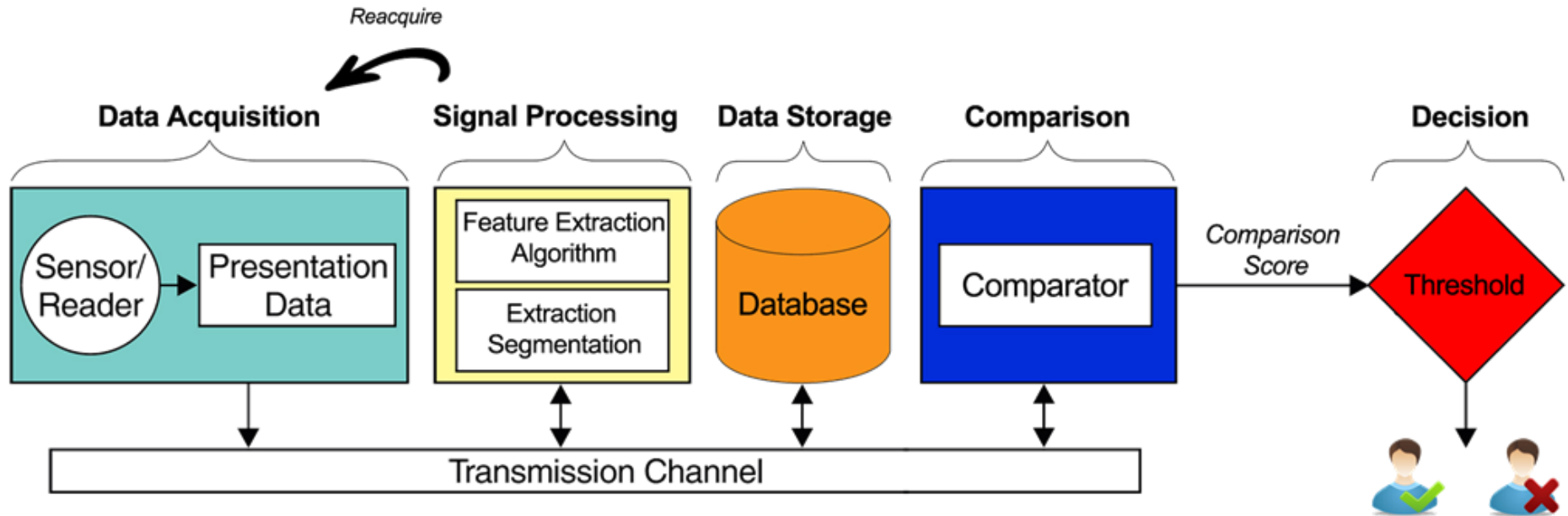# Identity theft and misuse
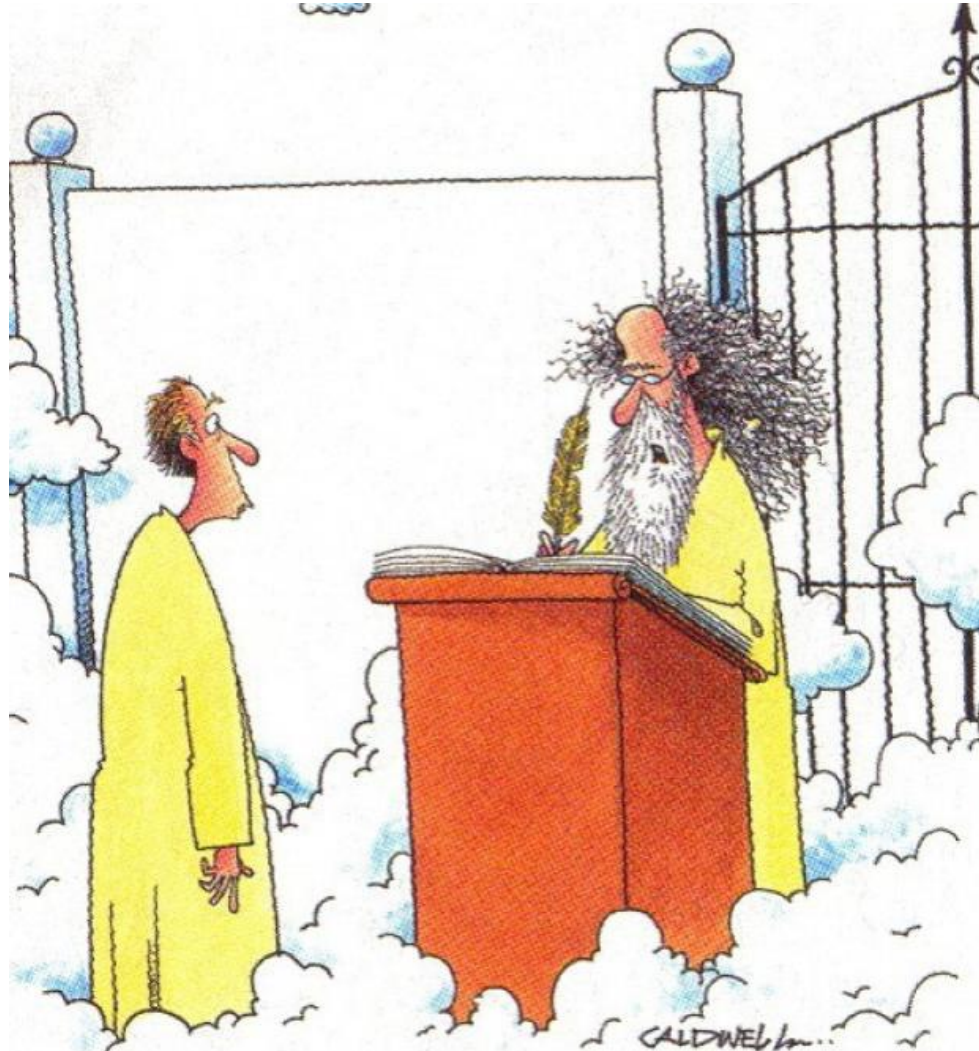
"I'm sorry, but someone else with that identity is already here."

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Identity theft: Athlete behaviour/preferences/interests

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Attacks Against Biometric Systems (Security and Privacy)

Reacquire

Data Acquisition — Sensor/Reader → Presentation Data

Signal Processing — Feature Extraction Algorithm, Extraction Segmentation

Data Storage — Database

Comparison — Comparator

Comparison Score

Decision — Threshold

Transmission Channel

- data protection – fair practices
- authentication
- data-integrity
- confidentiality
- access controls
- non-repudiation

Security

Privacy

Risks

Login & Password
+ SSL
OTP
Token
1 Factor Infos Typed
2 Factors Not Connected Infos Typed
2 Factors Connected
Cryptographic Terminal N Factors Connected Challenges/Responses External protected infos
+biometry

Frauds

Security

Caroline™ Galaxy Solutions Véga™ Alya™ Atria™

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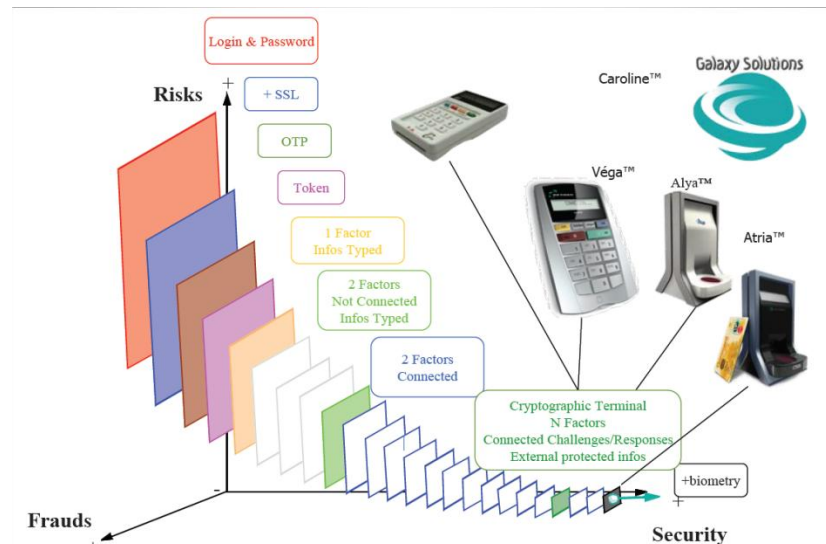
Identity Management: (Biometric) Authentication and Challenges

– Personal identification number:

   First aid - identity asked after event

– How people to find their bike/ski?

   (Authentication or another mechanism here?)

– Pick up the right luggage

– Antidoping and biometrics

– Persons racing in other people's name

– Ethical and legacy aspects of keeping profiles

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Identity Management

- Accommodation: Hotel & door access.
- Health: Wrist bands
- Transportation: Parking lot access
- Multi-purpose use of cards: for payments, door access, other id management.

. Can we keep barcode on this card?
. Can we keep biometric profiles on it (authentication)?
. Can it be used for access control?

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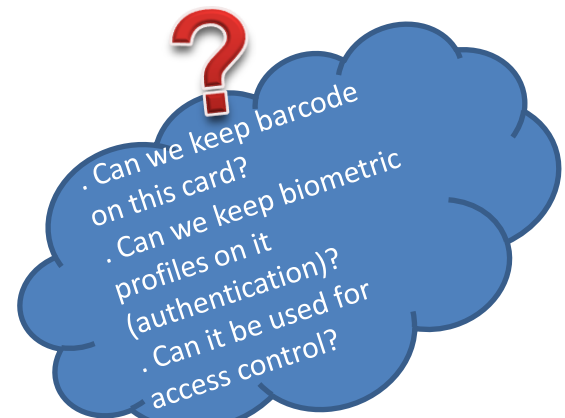
Technology Part

1. **Development of technology and methods**

   (Applications of Multibiometrics at Sport Events)

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Multimodal Biometric Systems (Motivation)

- To permit choice of biometric modality for authentication

- To increase population coverage by reducing the failure to enroll rate

- To enhance performance

- To extend the range of environmental conditions under which authentication can be performed

- To improve resilience to spoofing

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What to integrate?

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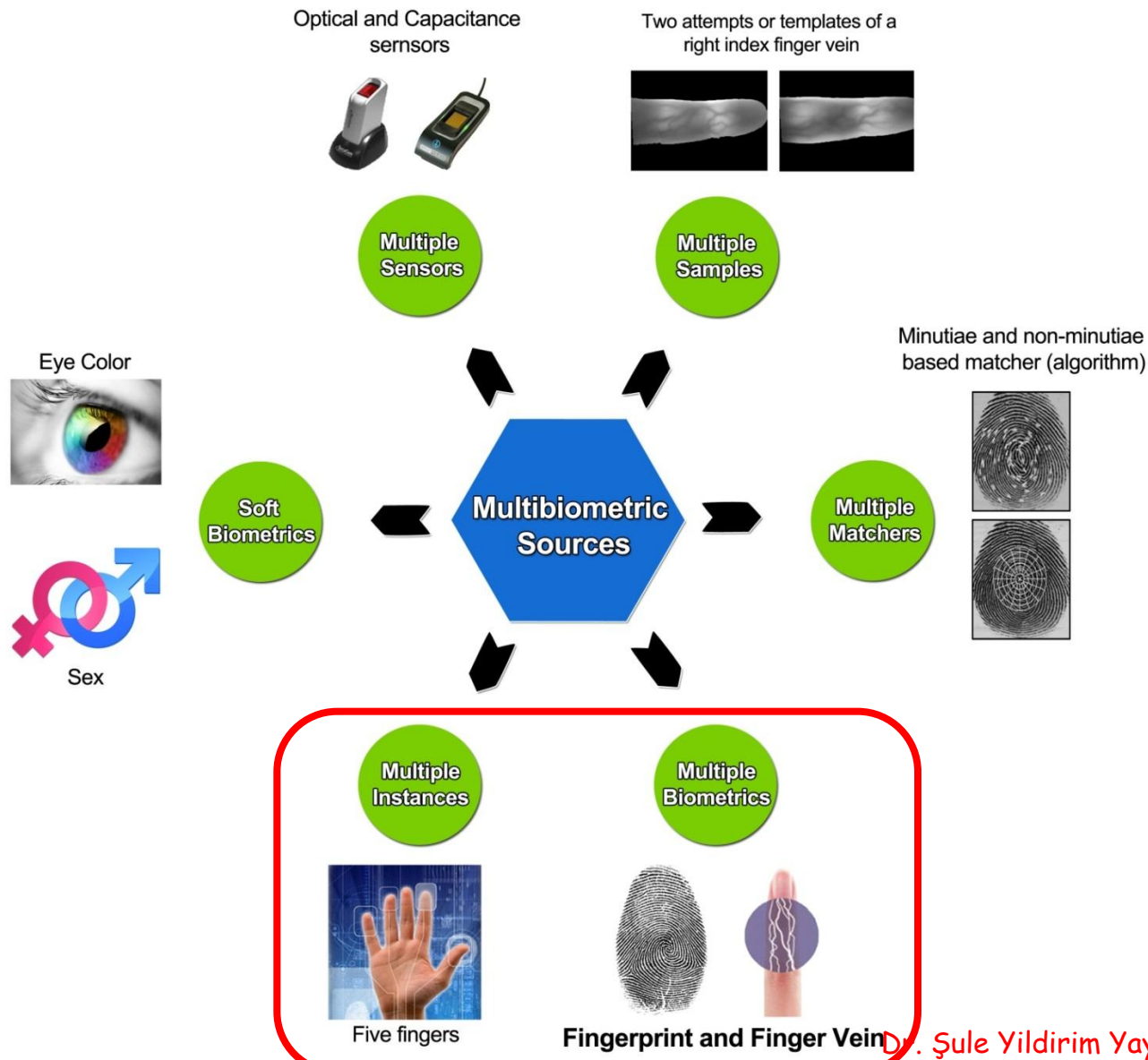
Levels of Fusion
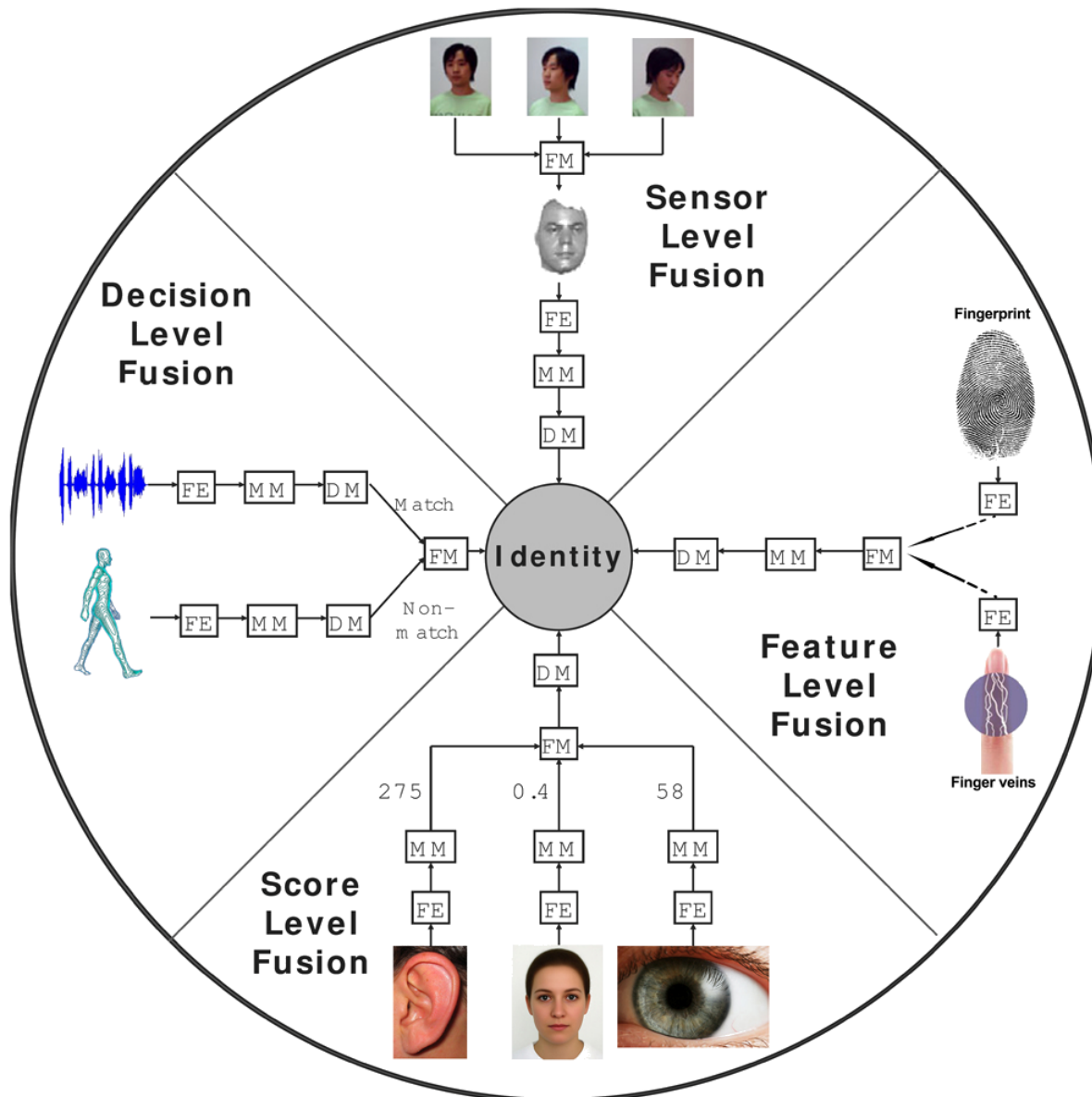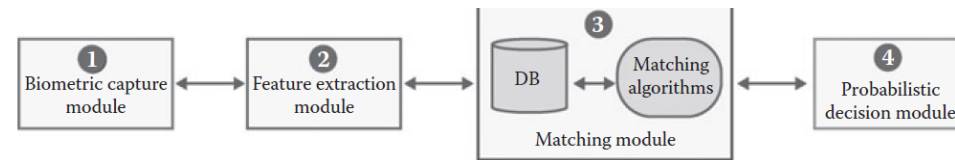
- **Sensor level**: combining raw sensor outputs

- **Feature extraction level:** combining extracted features

- **Comparison score level**: combining comparison scores

- **Decision level**: combining identity decisions

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Finger Vein / Fingerprint
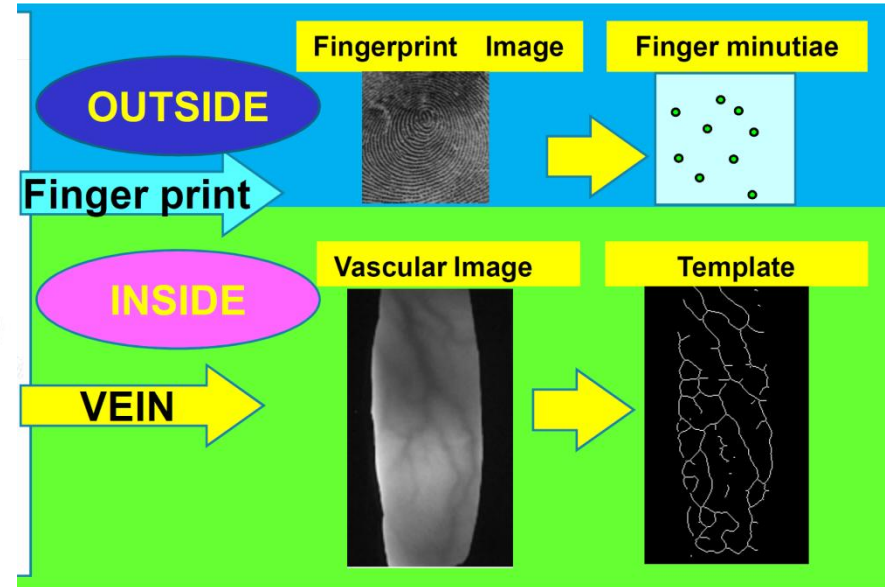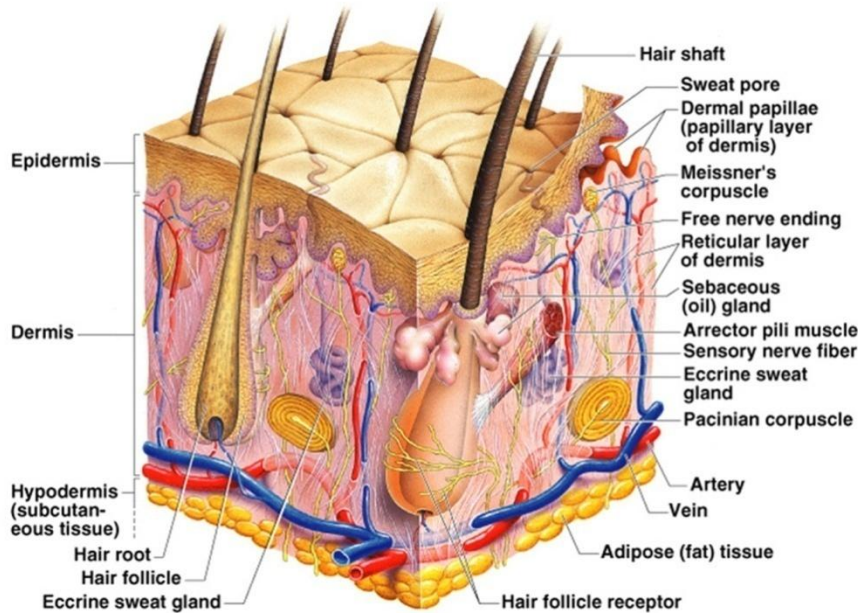
Source: SONY Finger Vein Authentication by Hideo Sato
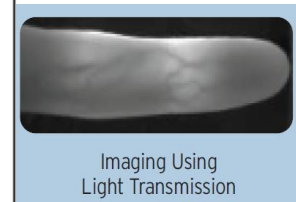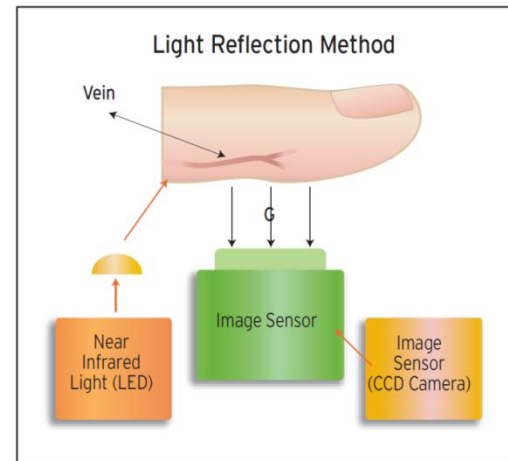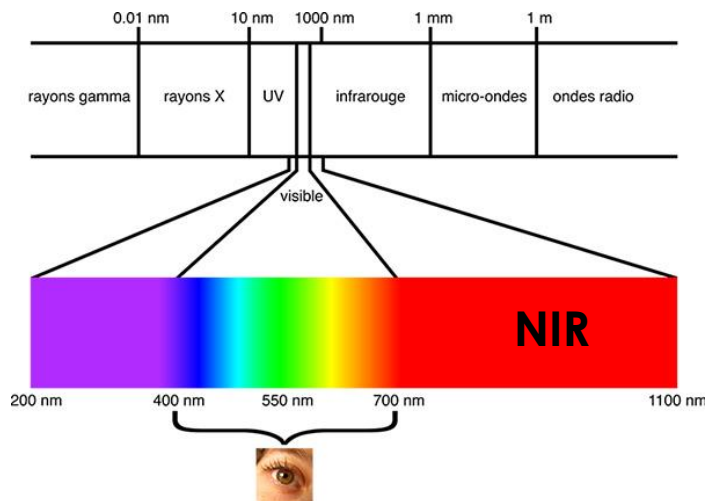
Near infra-red light is absorbed by hemoglobin in the blood and the vein pattern is captured as a shadow.

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Focus on Multibiometrics (Fingerprint and Finger Vein)

When the finger touches the sensor, the papillary network is given by total reflection

The image of the middle phalanx vein network is captured directly after a close infrared illumination of the finger

Image acquisition → Feature extraction → Coding → Finger Vein and Fingerprint merged template / Fusion

Example of Fusion at feature level
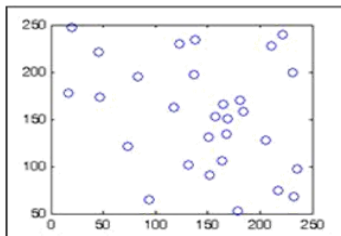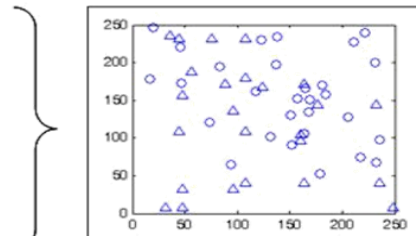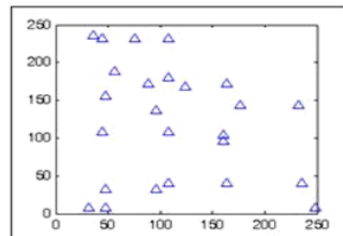
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Experiment (MSc Thesis)

Database

- Shandong University in China, they called this database "SDMLA-HMT: A Multimodal Biometric Database"- 2010, where **106 participants: 61 males** and **45 females** with age between 17 and 31.
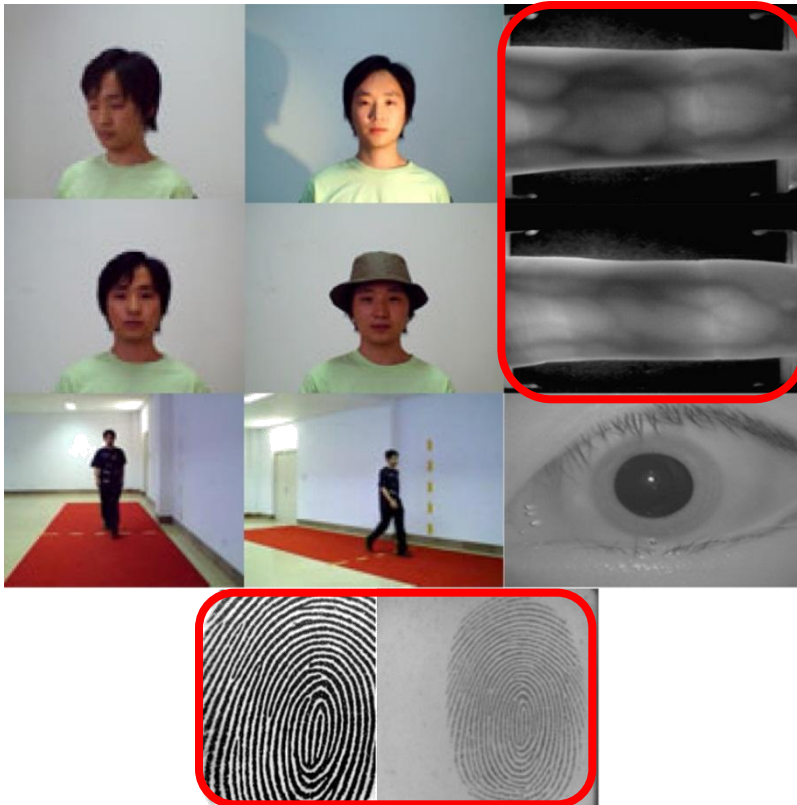
Database	Mean	Standard Deviation
DB1 [1] AES2501	2.3880	0.8858
DB2 [2] FPR620	1.9764	0.8385
DB3 [3] FT-2BU	3.2229	0.9600
DB4 [4] URU4000B	2.1187	1.0094
DB5 [5] ZY202-B	1.9894	0.8881

Quality Scores: **1-best, 5 worst**.

DB1		DB2		DB3	
Filenames	Quality Scor	Filenames	Quality Scor	Filenames	Quality Scor
1_002_1_3_p.jpg	3	2_002_1_3_p.jpg	1	3_002_1_3_p.jpg	3
1_002_1_4_p.jpg	2	2_002_1_4_p.jpg	1	3_002_1_4_p.jpg	2
1_002_1_5_p.jpg	2	2_002_1_5_p.jpg	1	3_002_1_5_p.jpg	3
1_002_1_6_p.jpg	2	2_002_1_6_p.jpg	1	3_002_1_6_p.jpg	3
1_002_2_1_p.jpg	3	2_002_2_1_p.jpg	1	3_002_2_1_p.jpg	3
1_004_1_1_p.jpg	2	2_004_1_1_p.jpg	1	3_004_1_1_p.jpg	3
1_004_1_4_p.jpg	2	2_004_1_4_p.jpg	1	3_004_1_4_p.jpg	3
1_004_1_5_p.jpg	2	2_004_1_5_p.jpg	1	3_004_1_5_p.jpg	3
1_004_1_6_p.jpg	3	2_004_1_6_p.jpg	1	3_004_1_6_p.jpg	3
1_004_2_2_p.jpg	2	2_004_2_2_p.jpg	1	3_004_2_2_p.jpg	3

Why Biometrics at SPEED?

Kazakh National Water Polo Team

Biometric scanners enhance Olympic Park security as big build ramps up

16 Oct 2009

'Expect the Unexpected' - What We Can Learn From Past Olympic Games

In our continued bid to ensure Global Mobility professionals around the world are prepared for the London 2012 Olympics, HCR has spoken to our World Connect partners in Australia and China to explore the impact the Olympic Games had on Sydney (2000) and Beijing (2008).

First and foremost, it is important to remember that the countries we are comparing are incredibly different to the UK; not only in terms of size, but also in terms of language, climate, legal process and business culture. The differences in each country – social norms and local culture, population density, city design, the year in which the Olympic Games took place – are instrumental to our comparison, and key factors to consider when approaching each country's methods, means and mindsets.

London 2012 biometric collection

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Why Biometrics at SPEED? #2

Intelligent identity

- European Football Championships Euro 2012 will be the greatest sport event, where polish security services and companies specialized in creating Intelligent Safety Systems will be tested.

System OLIMP created by WASKO & HITACHI

- Safety for Fans,
- Increase marketability of sport object,
- Increase of tickets selling system performances,
- Successful execution of stadium ban,
- 100% agreement with Act on Mass Events Safety.
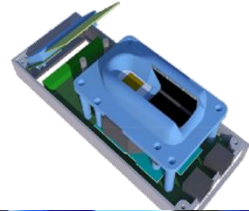
Why Biometrics at SPEED? #3
Idea for Birkebeiner

A need for identity management here

A security hole in this process

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Why Biometrics at SPEED? #4

We need to be prepared for UNGDOMS-OL 2016 ?!

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The Role of Embassy

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Future Work
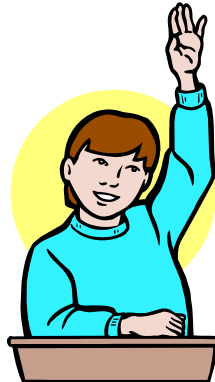

Kazakh Olympic Weight Lifters Team

ONE template (GROUP Biometrics) e.g. weight lifters team with their own group biometric.!

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Thank you for your attention!

Takk for oppmerksomheten!

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