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Identity, Biometrics and Behavior Predictability

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Acknowledgements:

HIDE activities at ZUYD Univ:

- Focus Group on Biometrics in Embedded Systems & Ambient Intelligence
- Policy Forum on Biometrics and Bodily Differences www.hideproject.org/events

ACTIBIO - Ethical Advisory Board

DIGIDEAS – ERC-StG on Social & Ethical Aspects of Digital Identities

`Identity' =

...Any answer to the questions:

Who are you ? Who is this?

Identification:

Any **means** or **practice** to *establish* someone' s identity

Purposes:

- * Establishing rights, duties, entitlements (soc benefits, education, taxing, voting, etc...)
- * Crime solution and prevention
- * Security and access control
- * Victim identification
- * Establishing credentials and background checks
- * Individualising and customising care, services, and marketing

*All in order to realise societal goals/values of
trust , security , justice*

A fundamental Paradox: Identification is simultaneously about: Unicity AND Classification

- your *unique identity*, as testified by your passport, is 'proven' by virtue of the passport being part of a *series* issued by a government and proclaiming you to be a citizen of a particular country, that is, a member of a particular *category*.
- A facial image or fingerprint in a police database may help in identifying a *particular* suspect, but simultaneously defines the person in question as belonging to the *category* of registered deviants.

Biometrics and classification:

Identification/authentication leads to assigning category:

- Member/non-member
- National/non-national
- Trusted/distrusted
- Low risk/high risk
- Eligible/non-eligible
- known/unknown
- Etc

Quote:

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Classifications are powerful technologies. Embedded in working infrastructures they become relatively invisible without losing any of that power.

Classifications should be recognized as the significant sites of political and ethical work that they are.

(Bowker & Star, **Sorting things out. Classification and its consequences**, MIT Press, 1999, p.319)

`Behavioral prediction`

(≠ Is not *`behavioral biometrics`* , which is about deriving an individual profile from *`behavior`* generated data such as walking, typing, in order to authenticate and/or identify)

= *`filtering`* of crowds and **classification** of individuals (in security contexts) as Trusted/distrusted; Low risk/high risk based on a *range* of sensor generated data, such as body temperature, facial expression, heart rate, movement pattern, voice pitch etc.

Recent developments in Biometrics

So called `Second Generation Biometrics`:

-Multimodality

-Distant sensing

-New biometric traits: behavior, gait, but also

-`Under the skin` or electrophysiological biometrics based on `ECG` `EEG` a.s.o.

-Soft biometrics: automated classification in sensitive categories like gender, ethnicity/race, age, weight, etc.

“The DHS says that [privacy] is not a problem, since the data is never linked to an **identity** and is only used to help officers decide if a suspicious person should be interviewed.”

Project Highlights

Existing automatic surveillance systems only alert human operators about a potentially dangerous situation/event after visual sensory data was passively and often blindly captured and processed. None of the current systems interact with human operators during sensory data capturing and processing. SAMURAI will develop a global behaviour-monitoring model for live video and other non-visual data captured by different types of fix-positioned and mobile sensors in a distributed sensor network. SAMURAI will also evaluate and exploit novel concepts and technologies for deploying wireless cameras with audio/position sensors.

Consortium and competencies

The SAMURAI consortium consists of:

- Three public transports infrastructure end-users as full participants and eleven additional external users as members of a User Advisory Group.
- Two World-leading research institutions in the security area.
- Comprehensive development and system integration in the security area of the industrial partners.



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Abnormal Behaviour

Suspicious and
Abnormal behaviour
Monitoring
Using a
network of
cameras for
situation awareness enhancement

Meeting the
European Security Challenge



issues

- *covert and distant* nature of data capture
- *body data*
- *normative nature: 'normality'*
- *interpretation* of data in terms of risk, (bad) intentions, prediction of criminal acts

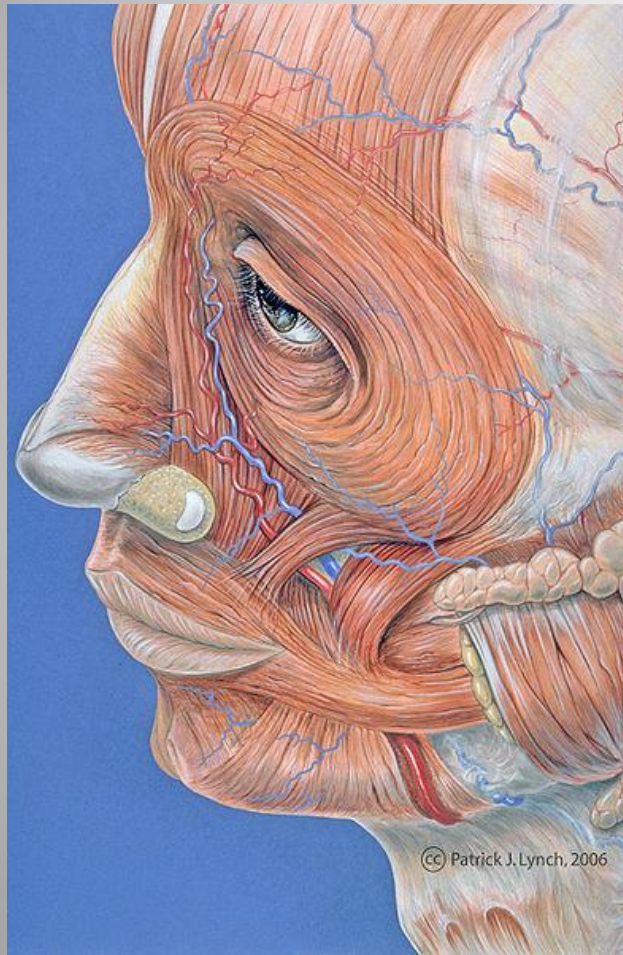
ADABTS Automatic Detection of Abnormal Behaviour and Threats in crowded Spaces



Missing facial muscles make some look glum

Kate Devlin

The Telegraph, June 17, 2008



“Scientists may have discovered the reason why some people always look glum.

Some humans have fewer muscles in their face than others, research from the University of Portsmouth suggests

The findings could perhaps explain why certain people, such as the character Victor Meldrew in the television series One Foot in The Grave, seem to have a permanent scowl.”

Summary :

Behavioral prediction using (2nd generation) biometrics and video analytics

- Unscientific : proof of concept?
- Threat to open free society and integrity of the person – anticipatory conformity
- Social costs of false positives: new forms of profiling, new forms discrimination
- Inflation of the security argument.

please see also

- Irma van der Ploeg & Isolde Sprenkels (2011) **Migration and the machine-readable body: identification and biometrics.** To appear in: *H.Dijstelbloem & A.Meijer (eds.) Migration and the new technological borders of Europe*, Pallgrave MacMillan, chapter 4
- *Irma van der Ploeg (2011) Normative assumptions in biometrics: On bodily differences and automated classifications In: Van der Hof, S. & Groothuis, M.(Eds) Groothuis en Innovating Government. Normative, policy and technological dimensions of modern government.* Cambridge: The Hague: TMC Asser Press.
- Irma van der Ploeg (2011 *forthcoming*) **Security in the Danger Zone: Normative Issues of Next Generation Biometrics.** to appear in: *E. Mordini and D. Tzovaras (eds.) Second Generation Biometrics*, Springer.

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Thank you for your attention

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