DO ANDROIDS DREAM OF BIOMETRIC SHEEPs?

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Early in the 21st Century, the Tyrell Corporation advanced robot evolution into the NEXUS phase - a being virtually identical to a human - known as a Replicant. Replicants were used Off-world as slave labour, in the hazardous exploration and colonization of other planets.

After a bloody mutiny, Replicants were declared illegal on earth - under penalty of death. Special police squads - BLADE RUNNER UNITS - had orders to shoot to kill, upon detection, any trespassing Replicant. Replicants can be identified only by using the Voight Kampff Machine, which analyzes the iris contractions and dilatations…”
Replicants and Humans…

This is the initial plot of “Blade Runner”, a science fiction film that became the cult movie of the 80's and is still a cornerstone of sociological science fiction.

The machine that allows to identify the Replicants was a biometric devise.
Biometrics may reveal a “core humanity”, any hidden secret of the person
Biometric Fallacy

- Both hypes and fears that surround biometric technologies stem from this fallacy.
- Those who overestimate biometrics tend to think that biometrics can solve problems that actually cannot solve; those who are overconcerned think that biometrics threat liberty and privacy more than it actually does.
- Both categories of people do not often see the real novelty of biometric identification technologies.

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Many ancillary and shadow data can be generated by biometric technologies, in particular by new multimodal and behavioural biometrics and their potential for misuse is high. But this is quite trivial.

The real question is: beyond any risk of misuse, is standard use of biometric technology a danger for liberty and privacy? Are biometrics threatening human dignity, as it has been stated by the French CCNE for instance?
How Biometrics work
With biometrics you don’t read the body, you generate templates

Biometrics do not make the body readable, not yet reveal any secret mathematic ratio in the body, but use your body to generate a code, which is actually created by a specific software. If you change the software you create a different code.

Biometric is not Pitagoras or Fibonacci’s dream made reality.

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Don’t confuse

An alphanumeric string

With the golden ratio
Some consequences...

An important consequence of my argument is that it is hardly tenable that biometrics are personal data.

As a matter of fact, a template cannot be equated to a row image and when images are not stored there is no real reason to give to templates the same protection accorded to personal data.

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A second consequence is that...

- Templates should be treated as PIN or other kinds of token.
- Biometric templates deserve the same level of protection that we give to any other token.
- It is not true that they are token that cannot be changed. It is enough to change the software and you can generate a totally new template from the same body feature.
In a sense, however, biometrics have a special relation with the body

In principle biometric identification is based on the idea that there is a biunivocal relation between a body and its owner.

If the one who has that body is x, you have that body, then you are x

This scheme is highly metaphysical and culturally determined...
The Body

- The body is a cultural construction par excellence.
- The same idea of a “body” is a cultural construct
- Many cultures do not distinguish the body from the individual and when they have a word to describe the body, this word means “corpse”.

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It is difficult indeed to imagine something more remote from an actual human face than a passport photograph taken with a neutral expression, which leaves only a frozen expression whose concrete liveliness evaporates.
But…

The biunivocal relation between the individual and his body is a cultural construct.

1) Demoniac possession
2) Suggestion and hypnosis
3) Brain washing
4) Clones
5) Twins
Can the body lie?

People – and policy makers - naively believe that the body cannot lie about identity.

It is no true. Bodies per se cannot prove identities because identities concerns persons and not bodies.

If you change an individual’s mind you change the individual though his body remains identical.
No need of fake identities

For instance if you want to overcome a security system, you don’t need to create a fake identity, it is enough that you convince someone - who is entitled to access - to help you. This is the way in which spies have always operated and in which they will continue operating.
"The chief principle of a well-regulated police state is this: That each citizen shall be at all times and places ... recognized as this or that particular person. **No one must remain unknown to the police.** This can be attained with certainty only in the following manner: Each one must always carry a pass with him, signed by his immediate government official, in which his person is accurately described. **There must be no exception to this rule.**"

Johann G. Fichte, **THE SCIENCE OF RIGHTS.**
Rights and Identity

- We usually think that the request for proof of identity is an expression of power by the person doing the requesting.

- On the contrary IDENTIFICATION IS ALWAYS FOR BESTOWING SOMEONE WITH A RIGHT.

- Secure identities are not primarily means to control citizens, on the contrary they are essential instruments to empower them.
Identification vs Categorisation

- Absolute powers need categories, they don’t need identifiable individuals.

- The individual is, even in extreme conditions, an instance of liberty.
The Convention on the Rights of the Child is the only International Convention that addresses the subject of Identity as a fundamental right of every human being.

- **Article 7**
The child shall be registered immediately after birth and shall have the right from birth to a name, the right to acquire a nationality and, as far as possible, the right to know and be cared for by his or her parents.

- **Article 8**
States Parties undertake to respect the right of the child to preserve his or her identity, including nationality, name and family relations as recognized by law without unlawful interference.
Biometric Novelty
Why identification/verification matter today?

The couple citizenship/personal identity emerged from around the sixteenth century, and is beginning to disintegrate.

Globalization, which is in its essence removal of fixed boundaries, implies weakening of the traditional concept of citizenship and personal identity based upon the notion of a bounded society.
In 2000 the UNICEF has calculated that 50 million babies (41% of births worldwide) were not registered and thus without any identity document. Pakistan, Bangladesh, Nepal have not yet made mandatory child registration at birth.
World Percentage of Unregistered Children

- Industrialized countries: 2%
- Latin America & the Caribbean: 15%
- Middle East & North Africa: 16%
- East Asia & the Pacific: 19%
- CEE/CIS and Baltic States: 23%
- Sub-Saharan Africa: 55%
- South Asia: 63%
Types of mobile populations

Note: 'UNHCR Population of Concern includes refugees, asylum seekers, returnees (returned refugees), Internally Displaced Persons (IDPs), returned IDPs, and others of concern to UNHCR (stateless, those holding temporary asylum, etc).

Sources:
Estimated Global Mobile Populations

- Refugees /uprooted people: 22 million (UNHCR 2002)
- Undocumented Migrants: 10-15 million (ILO 2000)
- International Travelers: 698 million (WTO 2000)
- Migrant Workers: 70-80 million (ILO 2001)
- Survivors of Trafficking: 700,000-2m (U.S. State Dept. 2002)

~ 800 million
An increasing number of online applications require a reliable means of identification of users.

There are numerous examples of such applications including Internet banking, online trading, remote management of confidential databases and access to personal information.

The conventional means of identification (e.g. passwords, personal identification numbers) can be easily compromised, observed or forgotten.

“On the Internet, nobody knows you’re a dog.”
## WORLD INTERNET USAGE AND POPULATION STATISTICS

<table>
<thead>
<tr>
<th>World Regions</th>
<th>Population (2006 Est.)</th>
<th>Population % of World</th>
<th>Internet Usage, Latest Data</th>
<th>% Population (Penetration)</th>
<th>Usage % of World</th>
<th>Usage Growth 2000-2005</th>
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</thead>
<tbody>
<tr>
<td>Africa</td>
<td>915,210,928</td>
<td>14.1 %</td>
<td>23,649,000</td>
<td>2.6 %</td>
<td>2.3 %</td>
<td>423.9 %</td>
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<td>Asia</td>
<td>3,667,774,066</td>
<td>56.4 %</td>
<td>380,400,713</td>
<td>10.4 %</td>
<td>36.5 %</td>
<td>232.8 %</td>
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<tr>
<td>Europe</td>
<td>807,289,020</td>
<td>12.4 %</td>
<td>294,101,844</td>
<td>36.4 %</td>
<td>28.2 %</td>
<td>179.8 %</td>
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<tr>
<td>Middle East</td>
<td>190,084,161</td>
<td>2.9 %</td>
<td>18,203,500</td>
<td>9.6 %</td>
<td>1.7 %</td>
<td>454.2 %</td>
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<tr>
<td>North America</td>
<td>331,473,276</td>
<td>5.1 %</td>
<td>227,470,713</td>
<td>68.6 %</td>
<td>21.8 %</td>
<td>110.4 %</td>
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<tr>
<td>Latin America/Caribbean</td>
<td>553,908,632</td>
<td>8.5 %</td>
<td>79,962,809</td>
<td>14.7 %</td>
<td>7.8 %</td>
<td>350.5 %</td>
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<tr>
<td>Oceania / Australia</td>
<td>33,956,977</td>
<td>0.5 %</td>
<td>17,872,707</td>
<td>52.6 %</td>
<td>1.7 %</td>
<td>134.6 %</td>
</tr>
<tr>
<td>WORLD TOTAL</td>
<td>6,499,697,060</td>
<td>100.0 %</td>
<td>1,043,104,886</td>
<td>16.0 %</td>
<td>100.0 %</td>
<td>189.0 %</td>
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</table>
The Identity Revolution

1) Global Human Mobility
   Mass of People in transit too huge to be handled in traditional ways

2) Unreliable Identity Documents
   Too many people without reliable documents.
   Too many unreliable States

3) Global Electronic Mobility
   Digital Identities, dispersed and globalised
WITH BIOMETRICS YOU DON’T NEED ANY LONGER A FAMILY, A TRIBE, A CITY, A STATE, WHICH GUARANTEES WHAT YOU ARE. YOU JUST NEED A SHARED PROCEDURE, AN ALGORITHM.

TO CERTIFY IDENTITIES THERE IS NO NEED OF NATION STATES, AND COMPLEX BIRTH REGISTRATION SYSTEMS.

WITH BIOMETRICS, MICROSOFT OR GOOGLE, OR EVEN A SMALL SOFTWARE HOUSE IN INDIA, COULD DO THE SAME JOB BETTER THAN A NATION STATE.
The identity revolution

This is the deep revolution that biometrics is introducing in the history of human civilization.

Identity management ends being a matter of local human communities, and start being a global matter, which can be ruled through shared, global, procedures.
## HIDE
### HOMELAND SECURITY, BIOMETRIC IDENTIFICATION & PERSONAL DETECTION ETHICS

List of participants:

<table>
<thead>
<tr>
<th>Participant no.</th>
<th>Participant organisation name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Coordinator)</td>
<td>CENTRE FOR SCIENCE, SOCIETY AND CITIZENSHIP</td>
<td>IT</td>
</tr>
<tr>
<td>2</td>
<td>CENTRE FOR THE ECONOMIC AND SOCIAL ASPECTS OF GENOMICS</td>
<td>UK</td>
</tr>
<tr>
<td>3</td>
<td>CENTRE FOR BIOMEDICAL ETHICS - YONG LOO LIN SCHOOL OF MEDICINE</td>
<td>SGP</td>
</tr>
<tr>
<td>4</td>
<td>EUTELIS ITALIA Srl</td>
<td>IT</td>
</tr>
<tr>
<td>5</td>
<td>FACULTY OF ELECTRICAL ENGINEERING - UNIVERSITY OF LJUBLJANA</td>
<td>SI</td>
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<td>6</td>
<td>FRAUNHOFER INSTITUTE FOR COMPUTER GRAPHICS RESEARCH - DEPARTMENT SECURITY TECHNOLOGY</td>
<td>DE</td>
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<td>7</td>
<td>INTERNATIONAL BIOMETRIC GROUP</td>
<td>USA</td>
</tr>
<tr>
<td>8</td>
<td>OPTEL Ltd</td>
<td>PL</td>
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<td>9</td>
<td>SAGEM DEFENSE SECURITE</td>
<td>FR</td>
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<td>10</td>
<td>THE HASTING CENTER</td>
<td>USA</td>
</tr>
<tr>
<td>11</td>
<td>ZUYD UNIVERSITY - INFONOMICS, NEW MEDIA &amp; SOCIETY</td>
<td>NL</td>
</tr>
</tbody>
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... And I heard
my name as if for the first time,
heard it in the way
One hears the wind or the rain,
but faint and far off
As though it belonged not to me
but to the silence
From which it had come and to
which it would go.

*Mark Strand, 2006, “My name”*