

PANEL

Are Automatic Biometric Recognition
Schemes Really Useful for Forensic Analysis?



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TABULA RASA focuses on a topic which is particularly relevant to Forensic Biometrics, which are some of the issues of direct (spoofing) attacks to trusted biometric systems. This is an issue that needs to be addressed urgently because it has recently been shown that conventional biometric techniques, such as fingerprints and face, are vulnerable to direct (spoo) attacks.

Direct attacks are performed by falsifying the biometric trait and then presenting this falsified information to the biometric system, one such example is to fool a fingerprint system by copying the fingerprint of another person and creating an artificial or gummy finger which can then be presented to the biometric system to falsely gain access. This issue effects not only companies in the high security field but also emerging small and medium sized enterprises (SMEs) that wish to sell biometric technologies in emerging fields.

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<http://www.tabularasa-euproject.org/>



What is justice?



No living being is just

Psalm 143 (142)

It is considered the oldest fragment of Western thinking. Anaximander reportedly lived on the island of Samos from the end of the seventh century to the middle of the sixth.

According to the generally accepted text the fragment reads:

ἐξ ὧν δὲ ἡ γένεσις ἐστὶ τοῖς οὐσι καὶ τὴν φθορὰν εἰς ταῦτα γίνεσθαι κατὰ τὸ κρεῶν· διδόναι γὰρ αὐτὰ δίκην καὶ τίσιν ἀλλήλοισι τῆς ἀδικίας κατὰ τὴν τοῦ χρόνου τάξιν.

Whence things have their origin, there they must also pass away according to necessity; for they must pay penalty and be judged for their injustice, according to the ordinance of time.

What is justice?



- Distributive
- Retributive
- Restorative
- Procedural
- Utilitaristic



Justice and Truth



- Justice is not truth
- Juridical Truth is not factual truth
- Juridical Truth is consistency between juridical facts, say, evidence presented to the court

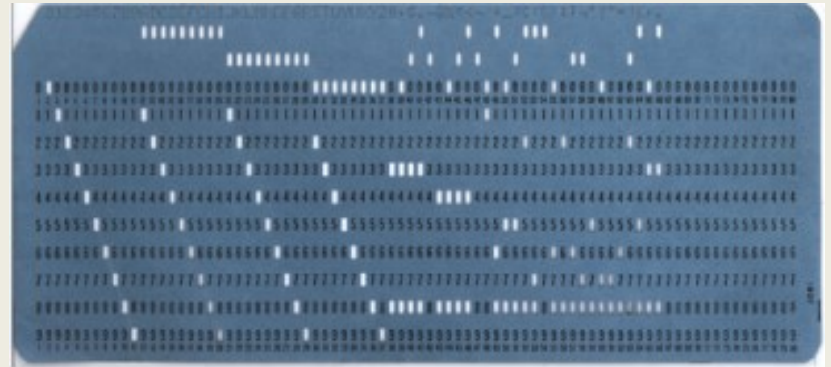




Justice without Mercy

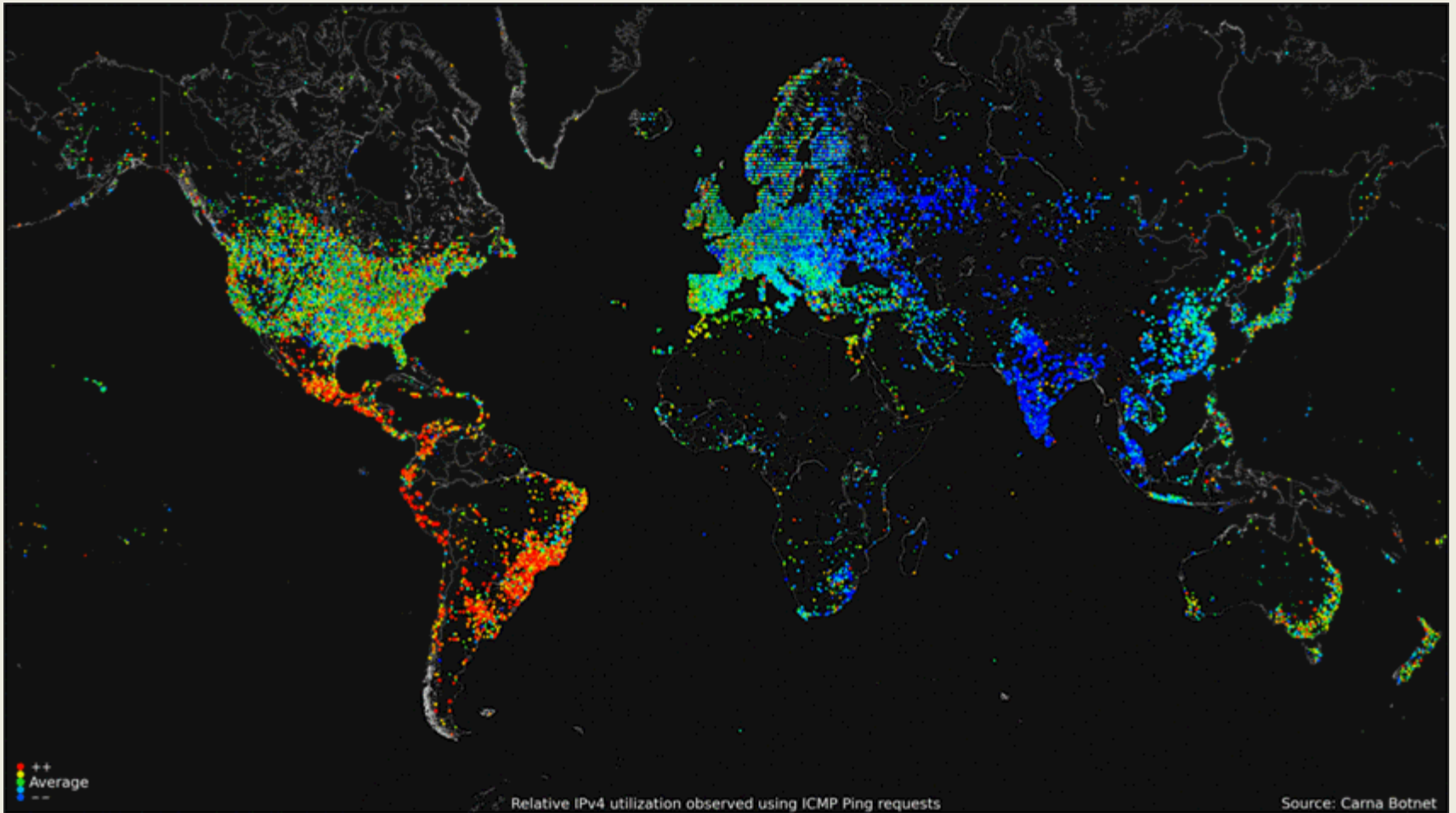


Summo Jus, Summa Injuria





ACCIDENTAL BIOMETRIC DATABASE





The main emerging issue



1. Harder to control or secure: Transactional, distributed & ubiquitous
2. Contain sensitive meta-data: Associated with actions that are space & time tagged
3. Lack of notice: Often consumer is contributing to them without understanding implications & without consent
4. Unlimited in size: Quickly become orders of magnitude larger than enrolment databases and can contain multiple entries per person

Presumption of innocence



- The principle of presumption of innocence is a main tenet of western juridical civilization.
- This principle dictates that a court should always chose the interpretation that favors the defendant. It implies that in order to be accepted as an evidence, biometric systems should be calibrated in a way to minimize false positive even if this implied a higher rate of false negative.
- This would not be the case with old, analog, fingerprint recognition based on experts' eyes, which were not probabilistic in essence.



Consequences

- In case of accidental biometric database, we are facing data search which are calibrated in a way to minimize false negative, say, the odds of failing to recognize a subject, even if this implies a higher rate of false positive.
- The puzzling consequence is that biometric evidence obtained outside the forensic context, and in particular by searching large, online, accidental, databases, should not be used routinely within the forensic context.





TABULA



Thank you for your patience and
attention
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