



Facial Recognition Technology: Legal and Ethical Issues

DMED 500

Hailey Mah, Rosanna Chung, Le Min Cheong



What is facial recognition software (FRT)?

- Having computers perform the human ability to recognize and distinguish between faces
 - Similar to other types of verification, but with one big difference
- **Video:** [How does Facial Recognition work?](#) (2:11 - 4:05)
- Faceprints or templates are compared with images in a database to verify identity
- Where are these database images coming from?
 - Surveillance camera footage
 - Driver's license photos
 - Your own calibrated face metrics



Timeline of innovations

- **1960s:** Facial recognition as a joint computer and human effort
- **1980s-90s:** Development of mapping and recognition software
- **2000s:** Integration with existing surveillance environments
 - Applications of law enforcement and security screening
 - Fraud and theft prevention
- **2010s:**
 - Faster, portable, more powerful processors via deep learning
 - Moving from 2D -> 3D image mapping
 - Infrared light mapping of faceprints
 - FRT + surface texture analysis = increased accuracy



Ethical Issues - Who is implicated?

Direct Stakeholders

- The Observed
 - Consumers with smartphones
 - Minorities
 - In Public Spaces
- Companies
 - Companies driving FRT development
 - Ex. Google, Facebook, Apple, Snapchat
- Developers
 - Software and Hardware Engineers
 - Designers
- Law enforcement
 - Police, Investigators



Ethical Issues - Who is implicated?

Indirect Stakeholders

- Marketers, Journalists, Tech reporters
 - People directing the public opinion
- Lawyers and policy makers
 - Can policy keep up?

Value Tensions

Privacy vs. Security

What is the right to privacy?

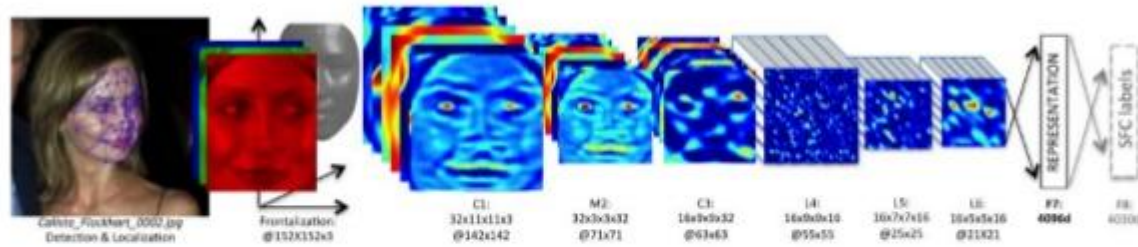
Transparency

In design, data collection

Context of uses

Software in criminal justice vs. Software in businesses

Legal issues



- C1, M2, C3 → Convolutional networks: extract low level features
- L4, L5, L6 → Locally connected networks: extract high level features
- F7, F8 → Fully connected networks: capture correlation between features discovered in distant parts of the face image

Facebook and DeepFace

- Largest facial dataset
- Illinois' Biometric Information Privacy Act
- Washington's consumer protection laws



Legal and normative issues, cont.

- Consequences for future policies: the fine line between privacy and safety
 - Value tension
 - Facebook and “special requests” from the law (NBC News)
- Regulation involved
 - FBI’s system
 - “No federal law controls this technology, no court decision limits it. This technology is not under control.” -Alvaro Bedoya (Georgetown Law, executive director of privacy tech.)
- Legal concerns and conclusions for the moment
 - Asking for consent and permission



Discussion Questions

- 1.) Have you experienced or seen similar biases online (FRT or not) with regards to the reading on Apple's FaceID? Have you seen resistance against FRT?
- 2.) What are some changes to the tech development industry that can help eliminate racial bias in FRT?
- 3.) What do you think about FindFace? Do you think it would be popular outside Russia?
- 4.) People grow less concerned about privacy in this digital age - do you think people will be the same with regards to companies that use FRT within their algorithms and store biometric information? Why or why not?
- 5.) Has your opinion about FRT changed after this presentation? How so?



References

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