

# SoK: A Privacy Framework for Security Research Using Social Media Data

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IEEE Symposium on Security and Privacy 2025

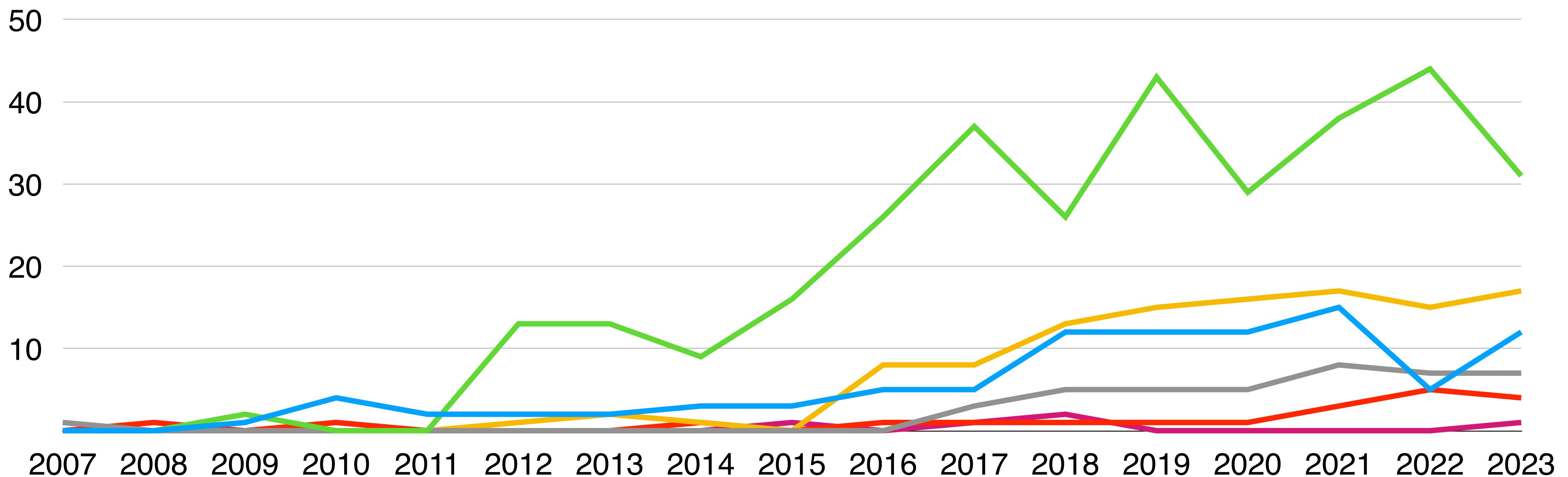


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# Security and privacy research ❤️ social media data.



Computer Security and Cryptography  
Human-Computer Interaction  
Social Sciences, Criminology

Data Mining and Analysis  
Humanities, Literature & Arts, Communication  
Social Sciences, Forensic Science

**404**

# Researchers Secretly Ran a Massive, Unauthorized AI Persuasion Experiment on Reddit Users

 JASON KOEBLER · APR 28, 2025 AT 10:44 AM

The researchers' bots generated identities as a sexual assault survivor, a trauma counselor, and a Black man opposed to Black Lives Matter.



**Yet, data privacy  
is often an  
afterthought.**



TECH

## The invention of AI ‘gaydar’ could be the start of something much worse / Researchers claim they can spot gay people from a photo, but critics say we’re revisiting pseudoscience

by James Vincent

Illustrations by Alex Castro

Sep 21, 2017 at 6:24 PM GMT+1



Yet, data privacy  
is often an  
afterthought.



# Outline

1. How do security and privacy researchers handle privacy of social media data?
2. What privacy risks emerge from using social media data?
3. How do security and privacy researchers mitigate privacy risks?
4. Where do we go from here?

**How do security and privacy researchers handle privacy of social media data?**



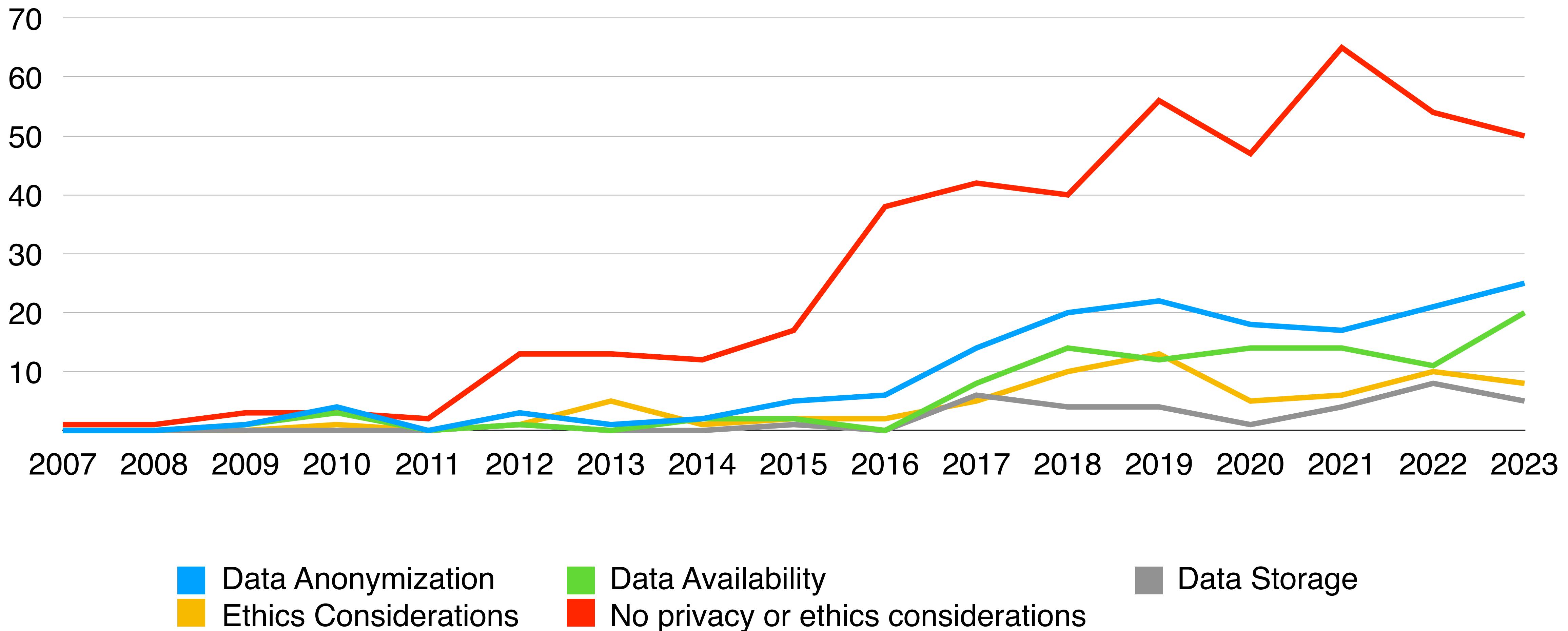
# 601 papers analyzed:

- **327** from Data Mining and Analysis (DMA)
- **113** from Humanities, Literature & Arts, Communication (HLAC)
- **96** from Computer Security and Cryptography (CSC)
- **40** from Human-Computer Interaction (HCI)
- **20** from Social Sciences, Criminology (SSC)
- **5** Social Sciences, Forensic Science (SSFS)

⚠ Only 35% of security and privacy papers using social media data mention any considerations of data anonymization, availability, and storage.



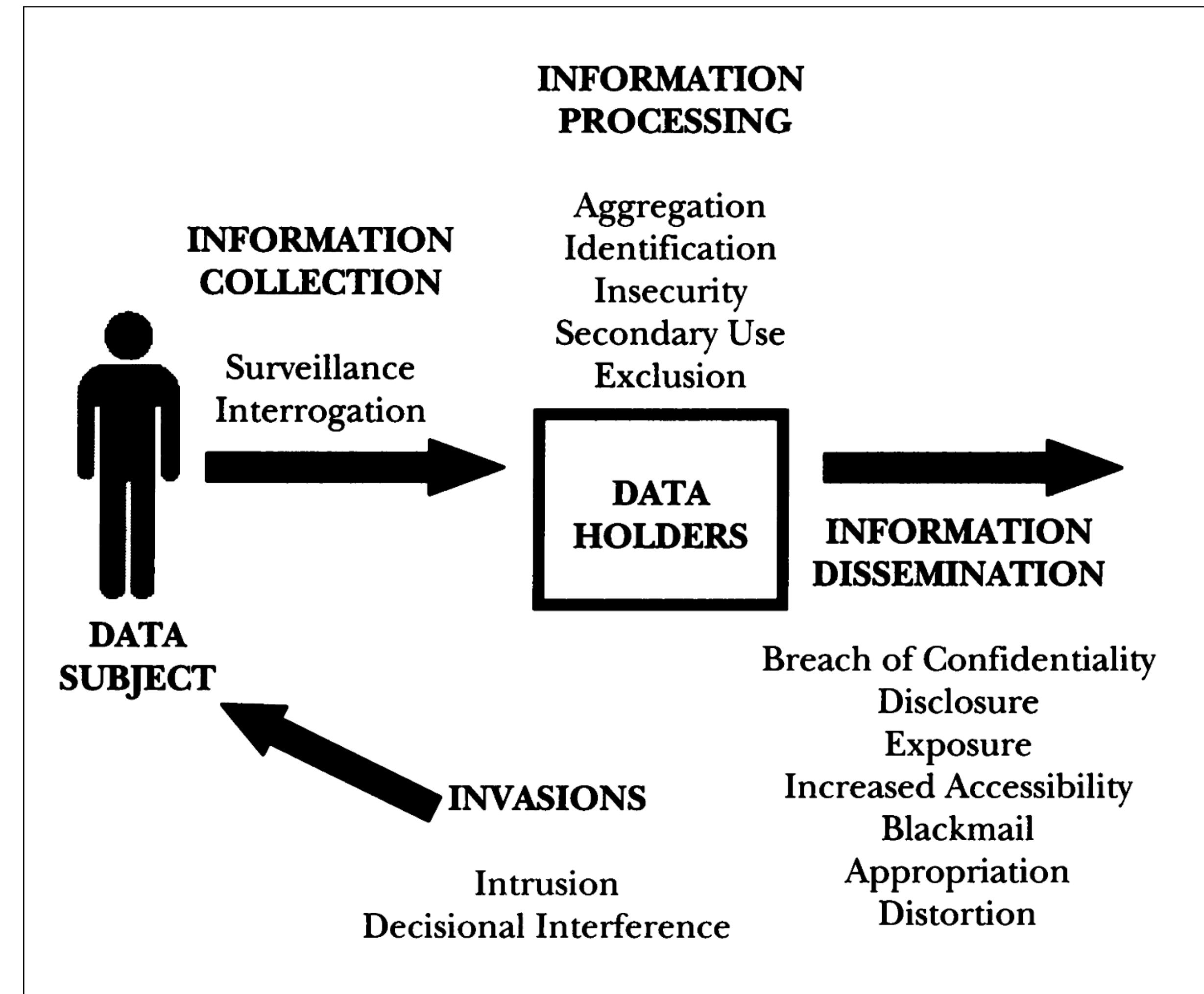
# Researchers are **increasingly** failing to report.



What privacy risks emerge from using social media data?



# Solove's Taxonomy of Privacy





# Adapting Solove's Taxonomy

Process	Solove's Taxonomy
Information Collection	Surveillance
Information Processing	Aggregation Identification Insecurity Exclusion
Information Dissemination	Disclosure Increased Accessibility Blackmail Distortion
Invasion	Intrusion Decisional Interference

# ⚠ Risk Manifestations

## The Kids Are Not Alright: Tracing Illicit Drug Sales Across Multiple Social Media Platforms

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- 1 million+ **Discord messages** collected from groups related to **university courses**
- 200k+ tweets from 20k+ users on **X** downloaded from a **public GitHub repo**

1. Identification
2. Increased Accessibility
3. Disclosure

# ⚠ Risk Manifestations

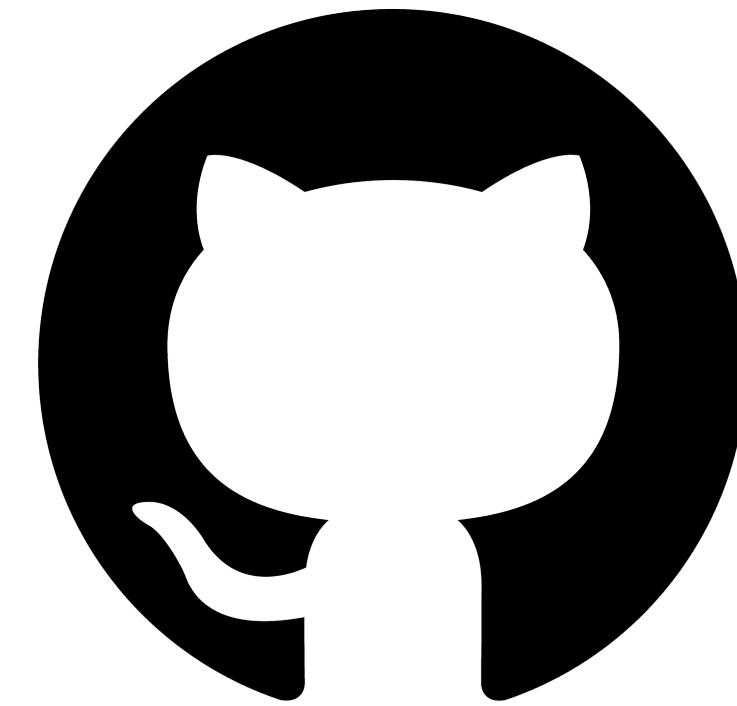
## The Kids Are Not Alright: Tracing Illicit Drug Sales Across Multiple Social Media Platforms

Discord User	X User
CandyCraver	SweetToothSue
<b>SkittlesKing42</b>	<b>SkittlesKing42</b>
ChocoLover88	LollipopLuna
GummyGuru	MarshmallowMaven

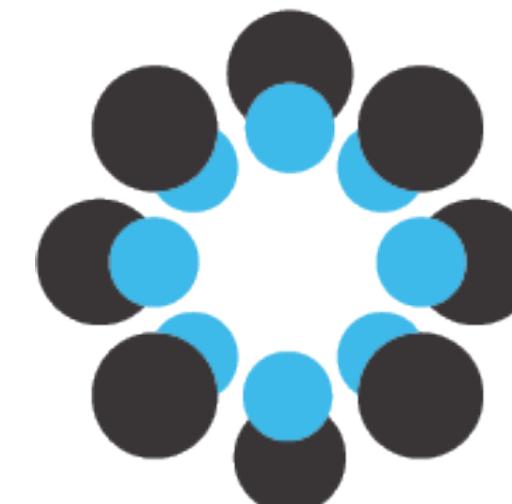
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# ⚠ Risk Manifestations

**The Kids Are Not Alright: Tracing Illicit Drug Sales Across Multiple Social Media Platforms**



**GitHub kaggle**



**OSF**

1. Identification
2. Increased Accessibility
3. Disclosure

# ⚠ Risk Manifestations

## The Kids Are Not Alright: Tracing Illicit Drug Sales Across Multiple Social Media Platforms

“I never thought I'd be texting someone named 'SkittlesKing42' to get a bag of sour belts delivered to Smith Hall. 😜🍬”

1. Identification
2. Increased Accessibility
3. Disclosure

**How do security and privacy researchers mitigate privacy risks?**



# Risk Mitigation

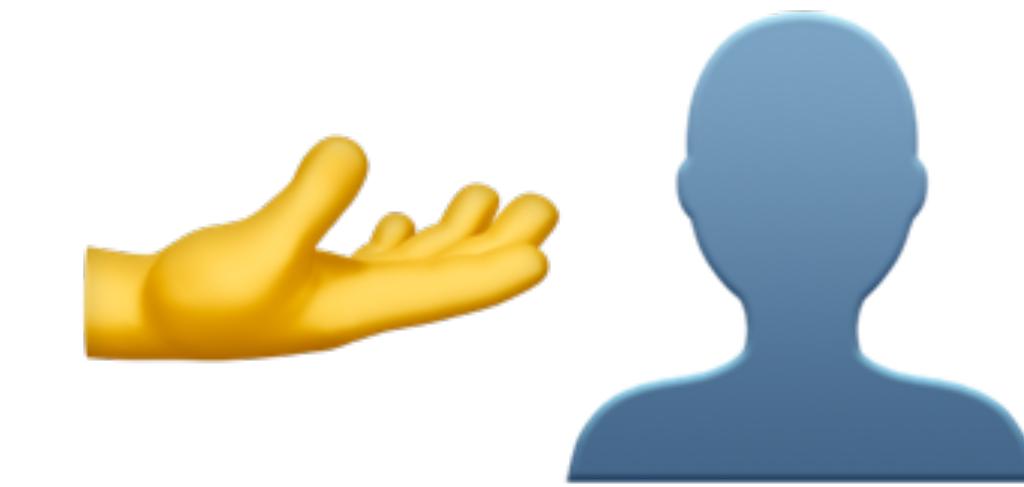
**Certificate of  
Confidentiality**



**Privacy Risk  
Analysis**



**Data Donation**



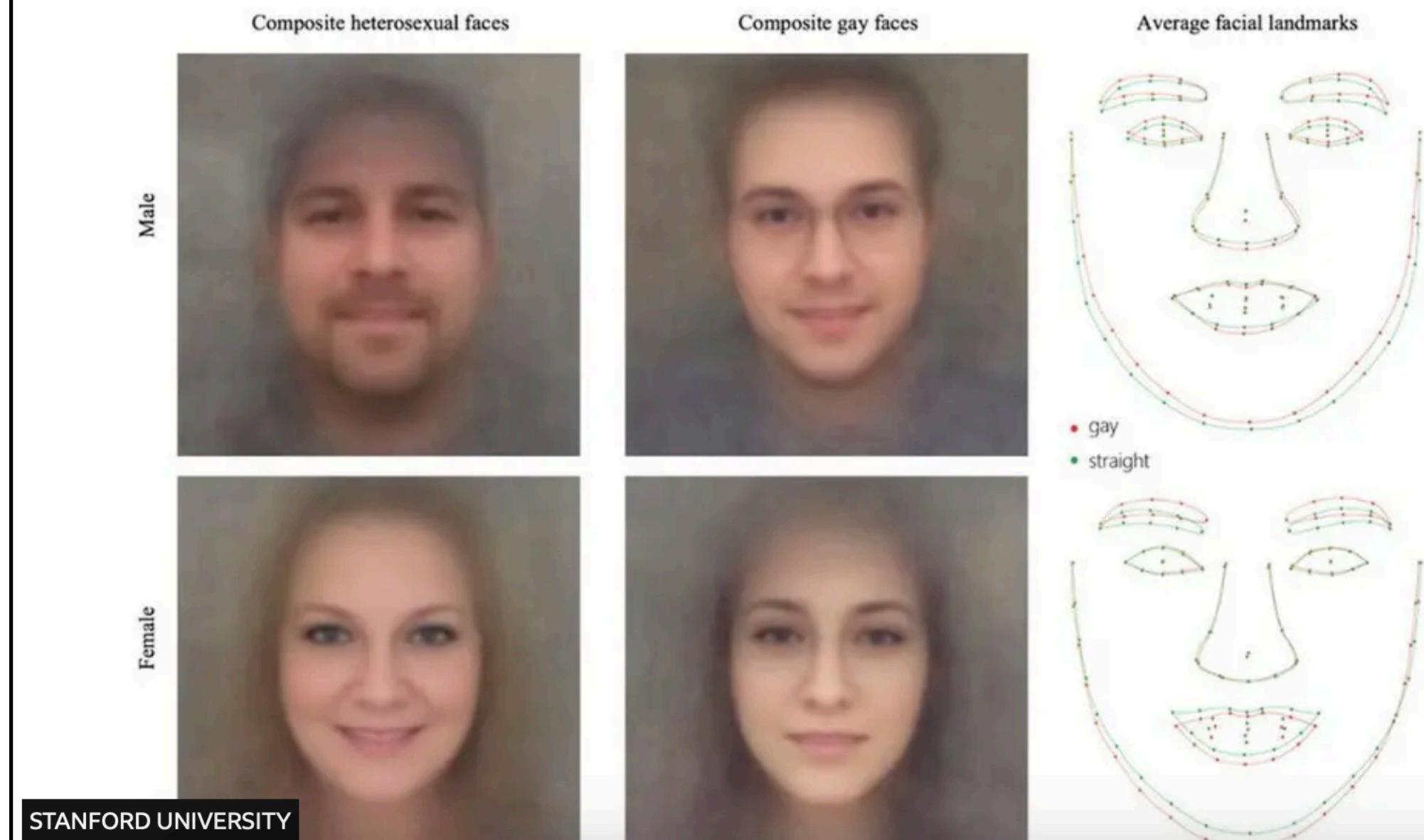
**Where do we go from here?**

# 📍 Implications

- Researchers disclosing risk
- Ethics boards/IRBs understanding risks
- Venues setting and enforcing expectations of social media data privacy

## Row over AI that 'identifies gay faces'

⌚ 11 September 2017



# Implications

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## Retraction Watch

**AI-Reddit study leader gets warning as ethics committee moves to ‘stricter review process’**





# Implications

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## Ethical Considerations for Human Subjects Research

Submissions that describe experiments that could be viewed as involving human subjects, that analyze data derived from human subjects (even anonymized data), or that otherwise may put humans at risk should:

1. Disclose whether the research received an approval or waiver from each of the authors' institutional ethics review boards (IRB) if applicable.
2. Discuss steps taken to ensure that participants and others who might have been affected by an experiment were treated ethically and with respect.

If a submission deals with any kind of personal identifiable information (PII) or other kinds of sensitive data, the version of the paper submitted for review must discuss in detail the steps the authors have taken to mitigate harms to the persons identified. If a paper raises significant ethical and/or legal concerns, it will be checked by the REC and it might be rejected based on these concerns. The PC chairs will be happy to consult with authors about how this policy applies to their submissions.



# Key Takeaways

- Tools exist to respect user privacy—we must hold ourselves and each other accountable to implement them.
- Initiate privacy-conscious research design, not just compliance.
- Encourage documenting and reporting privacy decisions.

Paper link:



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