

Critical Design and AI

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artist, designer, researcher, computer scientist

new media art

new media art

*art that becomes possible when artists
appropriate the knowledge behind
technology*

new media art

*art that becomes possible when artists
appropriate the knowledge behind
technology*

appropriation of the processes of creation
of new knowledge





artificial intelligence...

Wielding Rocks and Knives, Arizonans Attack Self-Driving Cars



A Waymo autonomous vehicle in Chandler, Ariz., where the driverless cars have been attacked by residents on several occasions. Caitlin O'Hara for The New York Times

By Simon Romero

Dec. 31, 2018

...and politics

- i) hype
 - ii) modelling
 - iii) society
 - iv) critical design
-

Hype

1

reality is political, not technological

AI is the new electricity

while there is a consensus about the importance of AI...

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How Artificial Intelligence Will Change Everything

Baidu's Andrew Ng and Singularity's Neil Jacobstein say this time, the hype about artificial intelligence is real



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F



~~THERE ARE
NO TECHNOLOGICAL
SOLUTIONS TO
POLITICAL
PROBLEMS!~~



AI in political campaigns?

#1 NATIONAL BESTSELLER

TRUMP

THE ART OF THE DEAL



"Trump makes one believe for a moment in the American dream again." —*The New York Times*

DONALD J. TRUMP with **TONY SCHWARTZ**



PROPELLED BY INTERNET, BARACK OBAMA WINS PRESIDENCY



Barack Obama was elected the 44th president of the United States

Tuesday night, crowning an improbable two-year climb that owes much of its success to his command of the internet as a fundraising and organizing tool.

...but AI creates believable “fake news”



Back in the mid-1700s, during the height of the Jacobite rebellion in Great Britain, **sedition printers printed fake news**, even going so far as to report that King George II was ill, in an attempt to destabilize the establishment. Such fake news was picked up by more reputable printers and republished, making it difficult to tell fact from fiction.

<http://www.thesocialhistorian.com/fake-news/>







COPYRIGHT 1914
L. E. HANST

GENERAL GRANT - MC CLELLAN

Composite photo -



Major General A. M. D. M. Cooch



**COULD HAPPEN ONLY
IN AMERICA!**

***Fantastic Details Of Mass
Hysteria***

Australian Associated Press

NEW YORK, October 31.—All day to-day reports came to hand adding more fantastic details to the already seemingly over-fantastic story of individuals' reaction to a radio story of the invasion of the earth by Martians.

The War of the Worlds (1938 radio drama)

If now **deep fakes** are a threat to democracy, why it was not considered a threat that **only the rich had access to mass media?**

...but AI is the (technological) future



New Electricity



Modelling

2

Our intuition of what can be done with computers
was wrong

Implicit modelling

Consciousness, modelling, and general AI

Society

3

Sent to Prison by a Software Program's Secret Algorithms

Sidebar

By ADAM LIPTAK MAY 1, 2017



Chief Justice John G. Roberts Jr., center, recently said that the day of using artificial intelligence in courtrooms was already here, "and it's putting a significant strain on how the judiciary goes about doing things." Stephen Crowley/The New York Times

When Chief Justice John G. Roberts Jr. visited Rensselaer Polytechnic Institute last month, [he was asked a startling question](#), one with overtones of science fiction.

Sidebar

Coverage and consideration of developments in the world of law.

[Why Gorsuch May Not Be So Gentle on the Bench](#) APR 17

[Trump's Precedent for Claiming Immunity? Clinton v. Jones](#) APR 2

[Will Gorsuch Join Justices in Time to Matter This Term?](#) MAR 20

[Did the Supreme Court Base a Ruling on a Myth?](#) MAR 6

[On Free Press, Supreme Court Pick at Odds With Trump](#) FEB 20

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Wisconsin Department of Corrections

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COMPAS Assessment Tool

The DOC uses COMPAS as its statewide automated risk and needs assessment and unified case planning system. This actuarial risk assessment system contains offender information specifically designed to determine their risk and needs and inform dynamic case plans that will guide the offender throughout his or her lifecycle in the criminal justice system. The [lifecycle](#) is a framework for how an offender moves through the Wisconsin criminal justice system and the decision points informed by COMPAS along the way. From the time of arrest through eventual discharge, DOC will use the lifecycle as a framework for establishing meaningful practices and interventions across jurisdictions.

Evidence Based Practices clearly state that having a sound assessment that accurately identifies an offender's risk to reoffend is the cornerstone of effective supervision. Without a proper assessment, appropriate interventions and services cannot be delivered. The limited dollars available for such services should be reserved for moderate to higher-risk offenders who are likely to reoffend if appropriate interventions are not taken. Research shows low risk offenders are less likely to commit new crimes and should be given minimal services and be excluded from intensive treatment and supervision.

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Wisconsin Department of Corrections

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docweb@wi.gov

Our analysis found that:

- Black defendants were often predicted to be at a higher risk of recidivism than they actually were. Our analysis found that black defendants who did not recidivate over a two-year period were nearly twice as likely to be misclassified as higher risk compared to their white counterparts (45 percent vs. 23 percent).
- White defendants were often predicted to be less risky than they were. Our analysis found that white defendants who re-offended within the next two years were mistakenly labeled low risk almost twice as often as black re-offenders (48 percent vs. 28 percent).
- The analysis also showed that even when controlling for prior crimes, future recidivism, age, and gender, black defendants were 45 percent more likely to be assigned higher risk scores than white defendants.
- Black defendants were also twice as likely as white defendants to be misclassified as being a higher risk of violent recidivism. And white violent recidivists were 63 percent more likely to have been misclassified as a low risk of violent recidivism, compared with black violent recidivists.
- The violent recidivism analysis also showed that even when controlling for prior crimes, future recidivism, age, and gender, black defendants were 77 percent more likely to be assigned higher risk scores than white defendants.

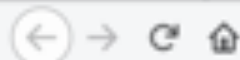


Historical bias

"Historical bias is a fundamental, structural issue with the first step of the data generation process and can exist even given perfect sampling and feature selection." – Suresh et. al. 2019

Prediction Fails Differently for Black Defendants		
	WHITE	AFRICAN AMERICAN
Labeled Higher Risk, But Didn't Re-Offend	23.5%	44.9%
Labeled Lower Risk, Yet Did Re-Offend	47.7%	28.0%

Harini Suresh
@harini824



https://family.schizophrenia.com/t/compas-assessment-your-experience-departm



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schizophrenia.com

COMPAS Assessment - Your experience? (department of corrections)

Family



Mary

2 Feb 20

My son received a letter from the DA's office to have a COMPAS assessment done. It's an assessment that the dept of corrections in my state has. Have any of you heard of this as I'm a little wary of this as they state my son has a choice on whether or not to go through this assessment. We meet with the public defender tomorrow so just want to get some opinions from all of you regarding this assessment before this meeting. Thanks so much!

1 Reply



There is a major qualitative change due to not having
to **explicitly model** a problem

How AI can help diagnose mental disorders:

<https://www.theatlantic.com/health/archive/2016/08/could-artificial-intelligence-improve-psychiatry/496964/>

Machine learning could train software to spot verbal tics associated with schizophrenia, depression, and bipolar disorder. This model focused on tell-tale verbal tics of psychosis: short sentences, confusing, frequent use of words like “this,” “that,” and “a,” as well as a muddled sense of meaning from one sentence to the next.

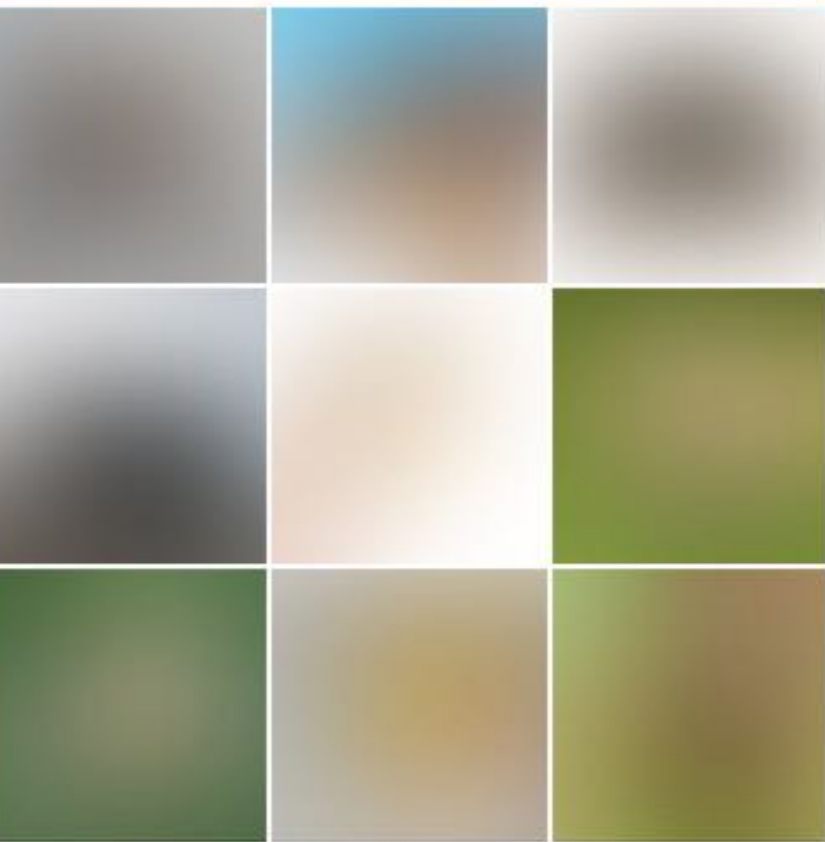
Socially Sensitive AI Software Coaches Call-Centre Workers:

<https://www.technologyreview.com/s/603529/socially-sensitive-ai-software-coaches-call-center-workers/> (teaching humans being more humane)

Critical Design

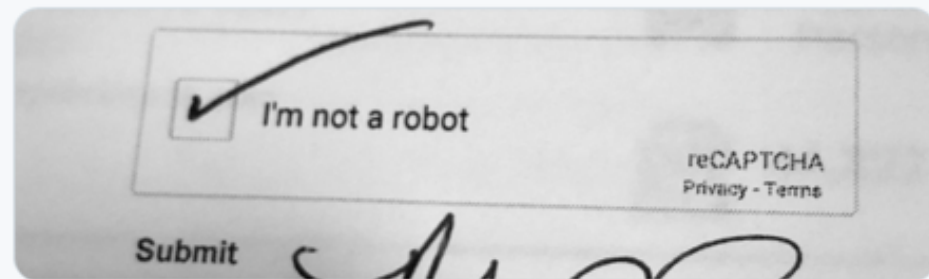
4

Select all squares with spiders



Marci Robin ✓ @MarciRobin · May 20, 2018

I bought a car today, and the dealership had me check off — with a pen, on paper — that I'm not a robot.



~~Is this ML model doing good?~~
How is this ML model shifting power?

Ria Kalluri
@radical_ai_

Why filming police violence has done nothing to stop it?

“After years of police body cams and bystander cellphone video, it’s clear that evidentiary images on their own don’t bring about change. What’s missing is power.”

Ethan Zuckerman

<https://www.technologyreview.com/2020/06/03/1002587/sousveillance-george-floyd-police-body-cams/>

Pattern: We watch those who are “less than.” Will you spy on your superior? Or will you spy on the poor man, the person of color, the immigrant, the heretic? We watch those who are “other.”

Pattern: When those “others” organize, mobilize, that watching is redoubled. Surveillance becomes a tool to stop marginalized people from achieving power.

“Privacy and Civil Rights in the Age of Facebook, ICE, and the NSA”

Professor Alvaro M. Bedoya

https://docs.google.com/document/d/1Px-Q5MFw54HGpJhY4Q_HQDoKF8qLU79wmPJXsoEpXYI/edit

Our modelling of the political impact of technology is, at best, naïve, and often willful ignorant

Steve Mann's *sousveillance*, the idea that connected cameras controlled by citizens could be used to hold power accountable has not worked.

Technology is determined by the “power vector field” where it's inserted.

It turns out that images matter, but so does power. Bentham's panopticon works because the warden of the prison has the power to punish you if he witnesses your misbehaviour. But Bentham's other hope for the panopticon—**that the behaviour of the warden would be transparent and evaluated by all who saw him**—has never come to pass.

Ethan Zuckerman

<https://www.technologyreview.com/2020/06/03/1002587/sousveillance-george-floyd-police-body-cams/>

The filming of police violence, however, has played an important role in *informing* the society.



Derek Chauvin, murderer of George Floyd

Amazon's Ring reportedly partners with more than 200 US police departments

Law enforcement across the country works with Ring

By [Colin Lecher](#) | [@colinlecher](#) | Jul 29, 2019, 6:22pm EDT

The inequitable and brutal treatment of Black people in our country must stop.

Together we stand in solidarity with the Black community – our employees, customers, and partners – in the fight against systemic racism and injustice.

amazon

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Facial Recognition Software Predicts Criminality, Researchers Say

By Harrisburg University

May 6, 2020

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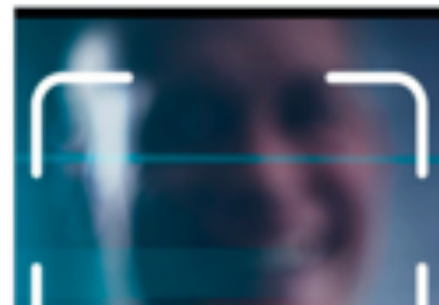
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A group of Harrisburg University professors and a Ph.D. student have developed automated computer facial recognition software capable of predicting whether someone is likely to become a criminal.

With 80 percent accuracy and with no racial bias, the software can predict if someone is a criminal based solely on a picture of their face. The software is intended to help law enforcement prevent crime.

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[Tech Firms Seek to Head Off Bans on Facial Recognition](#)

A group of Harrisburg University professors and a Ph.D. student have developed automated computer facial recognition software capable of predicting whether someone is likely to become a criminal.

With 80 percent accuracy and with no racial bias, the software can predict if someone is a criminal based solely on a picture of their face. The software is intended to help law enforcement prevent crime.

<https://cacm.acm.org/careers/244713-facial-recognition-software-predicts-criminality-researchers-say/fulltext>

"By automating the identification of potential threats without bias, our aim is to produce tools for crime prevention, law enforcement, and military applications that are less impacted by implicit biases and emotional responses," Ashby says. "Our next step is finding strategic partners to advance this mission."

"Crime is one of the most prominent issues in modern society. Even with the current advancements in policing, criminal activities continue to plague communities," Korn says. "The development of machines that are capable of performing cognitive tasks, such as identifying the criminality of person from their facial image, will enable a significant advantage for law enforcement agencies and other intelligence agencies to prevent crime from occurring in their designated areas."

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Research | [Open Access](#) | [Published: 07 January 2020](#)

Criminal tendency detection from facial images and the gender bias effect

[Mahdi Hashemi](#) ✉ & [Margeret Hall](#)

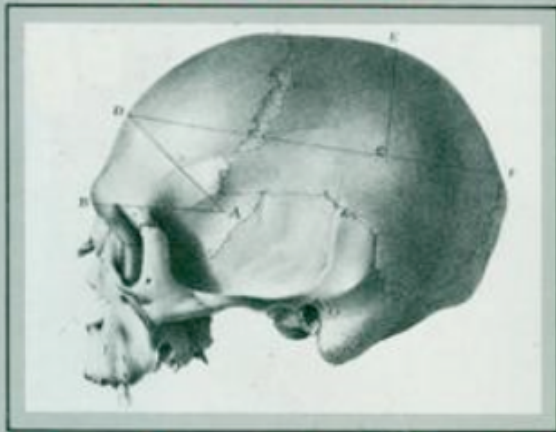
Journal of Big Data **7**, Article number: 2 (2020) | [Cite this article](#)

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Abstract

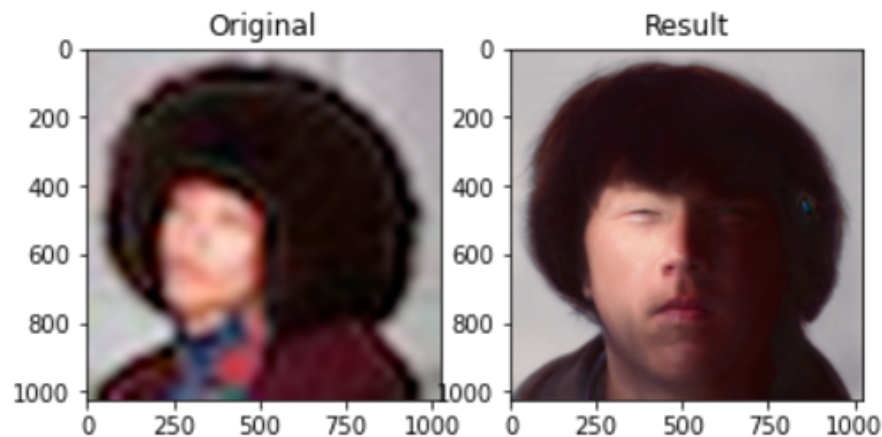
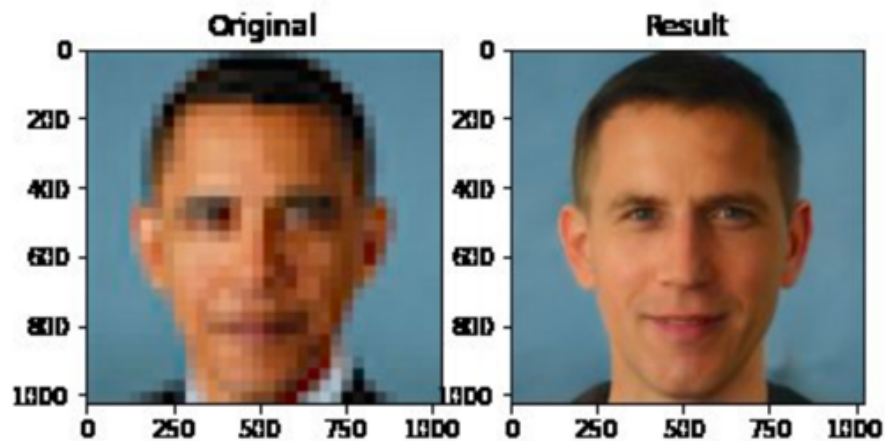
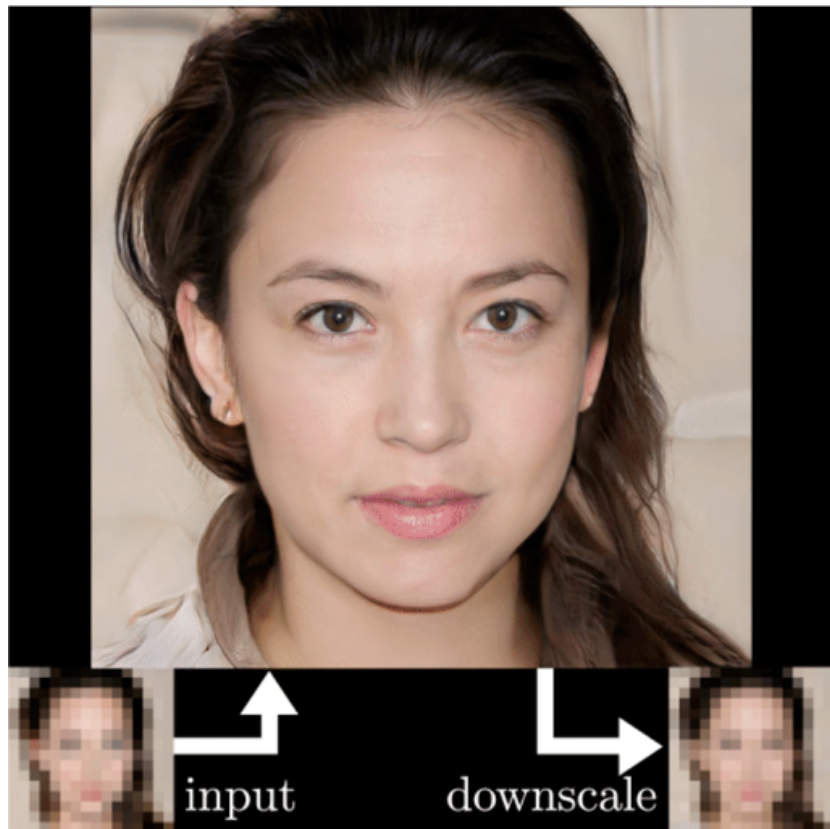
Explosive performance and memory space growth in computing machines, along with recent specialization of deep learning models have radically boosted the role of images in semantic pattern recognition. In the same way that a textual post on social media reveals individual characteristics of its author, facial images may manifest some personality traits. **This work is the first milestone in our attempt to infer personality traits from facial images.** With this

The Mismeasure of Man



Stephen Jay Gould

author of *Ever Since Darwin* and *The Panda's Thumb*



<https://github.com/tg-bomze/Face-Depixelizer>

Facial feature discovery for ethnicity recognition

Cunrui Wang^{1,2} | Qingling Zhang² | Wanquan Liu³ | Yu Liu¹ | Lixin Miao¹

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²Institute of System Science, Northeastern University, Shenyang, China

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Funding information

National Natural Science Foundation of China, Grant Number: 61362003, 61772575; China Education & Research Network Innovation Project, Grant Numbers: NGH20170419, NGH20170631

The salient facial feature discovery is one of the important research tasks in ethnical group face recognition. In this paper, we first construct an ethnical group face dataset including Chinese Uyghur, Tibetan, and Korean. Then, we show that the effective sparse sensing approach to general face recognition is not working anymore for ethnical group facial recognition if the features based on whole face image are used. This is partially due to a fact that each ethnical group may have its own characteristics manifesting only in specified face regions. Therefore, we will analyze the particularity of three ethnical groups and aim to find the common characterizations in some local regions for the three ethnical groups. For this purpose, we first use the facial landmark detector STASM to find some important landmarks in a face image, then, we use the well-known data mining technique, the mRMR algorithm, to select the salient geometric length features based on all possible lines connected by any two landmarks. Second, based on these selected salient features, we construct three "T" regions in a face image for ethnical feature representation and prove them to be effective areas for ethnicity recognition. Finally, some extensive experiments are conducted and the results reveal that the proposed "T" regions with extracted features are quite effective for ethnical group facial recognition when the L_2 -norm is adopted using the sparse sensing approach. In comparison to face recognition, the proposed three "T" regions are evaluated on the olivetti research laboratory face dataset, and the results show that the constructed "T" regions for ethnicity recognition are not suitable for general face recognition.

In spite of lacking a genetic definition of race or ethnicity (which would be akin to proposing a genetic definition of nationality), it is possible to find statistical correlations between genetic composition and ethnical groups. A narrative actively marketed by personal genetic companies.

Leaving aside the fact that these tests are *wildly* inaccurate (genetic markers evolve over time, they are not always passed, and people migrate, among other complexities), these tests put forward the idea that biological differences have a deep, fundamental meaning.

This spurious correlation between genetic makeup and ethnicity transcends the personal sphere, having been co-opted by several organised racist groups that use them as a source of self-validation, as well as fuelling the implementation of state-wide policies aiming at using DNA ancestry as a form of social policing.

For example, in patented research published by Chinese government researchers, they described **“ways to sort people by ethnicity by screening their genetic makeup” with the explicit intention of surveilling Uyghurs, with a system that would help in “inferring the geographical origin from the DNA of suspects at crime scenes. (*)”**

(*) Wee, S.-L. <https://www.nytimes.com/2019/02/21/business/china-xinjiang-uyghur-dna-thermo-fisher.html>

Deep neural networks are more accurate than humans at detecting sexual orientation from facial images.

Yilun Wang, Michal Kosinski

We show that faces contain much more information about sexual orientation than can be perceived and interpreted by the human brain. We used deep neural networks to extract features from 35,326 facial images. These features were entered into a logistic regression aimed at classifying sexual orientation. Given a single facial image, a classifier could correctly distinguish between gay and heterosexual men in 81% of cases, and in 74% of cases for women. Human judges achieved much lower accuracy: 61% for men and 54% for women. The accuracy of the algorithm increased to 91% and 83%, respectively, given five facial images per person.

“Imagine for a moment the potential consequences if this flawed research were used to support a brutal regime’s efforts to identify and/or persecute people they believed to be gay,” Ashland Johnson, Human Rights Campaign’s director of public education and research, said in a statement.

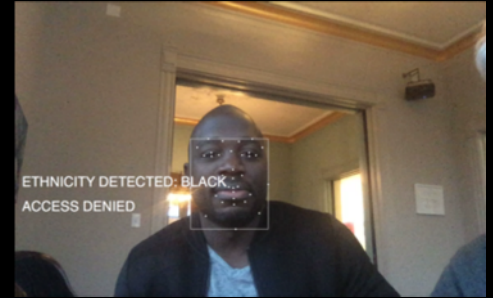
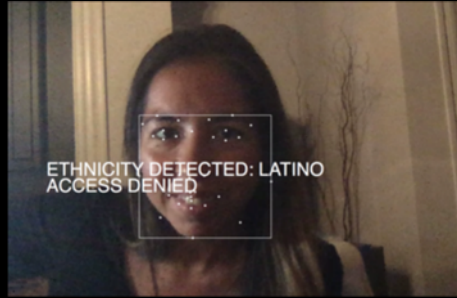
"For one, I'm sure there is heavy data-set bias at work here. But since this is all not open code/data (surprise surprise), It's hard to tell. Secondly, the research makes definitive, **binary statements about human sexuality - negating a very large cultural component in the **spectrum** of human sexuality.**"

Samim Winiger

<https://www.theguardian.com/world/2017/sep/08/ai-gay-gaydar-algorithm-facial-recognition-criticism-stanford>

However, **Kosinsky** (Stanford) predicts that AI algorithms will also be able to identify:

- a person's political beliefs
- whether they have high IQs
- whether they are predisposed to criminal behaviour
- whether they have specific personality traits





DOOR (with Katia Vega, Stochastic Labs and SCM, 2018)



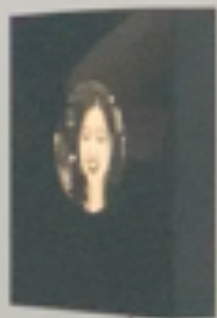
BOX (With Katia Vega)

BOX (With Katia Vega)



BOX (With Katia Vega)



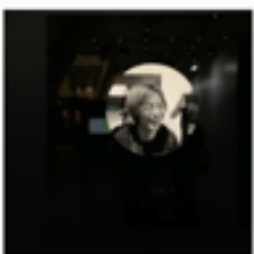
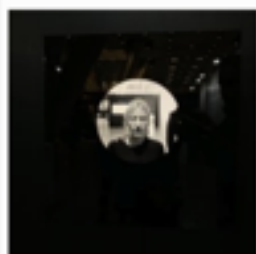
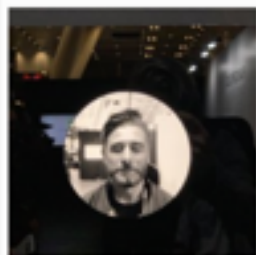
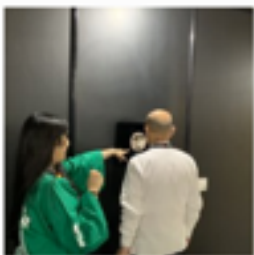
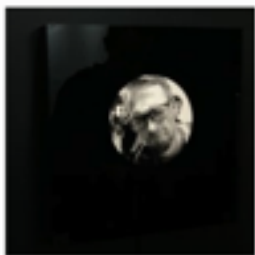
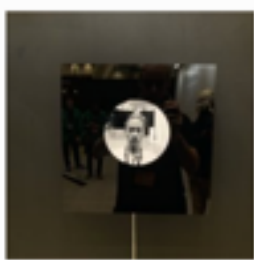
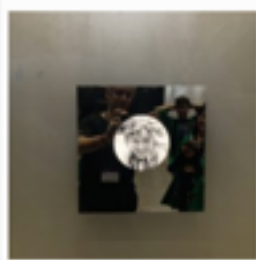


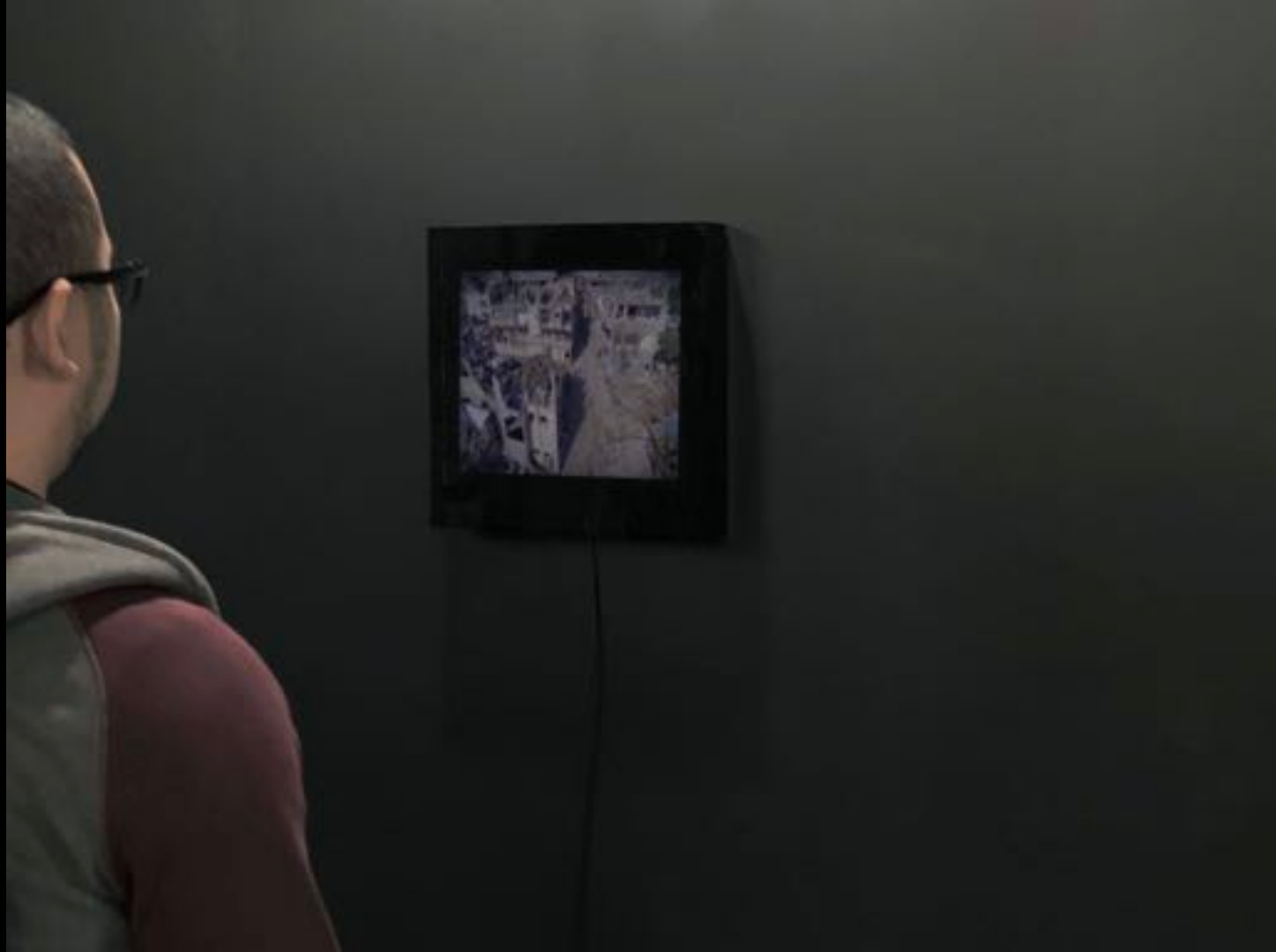
Memories of the Blind

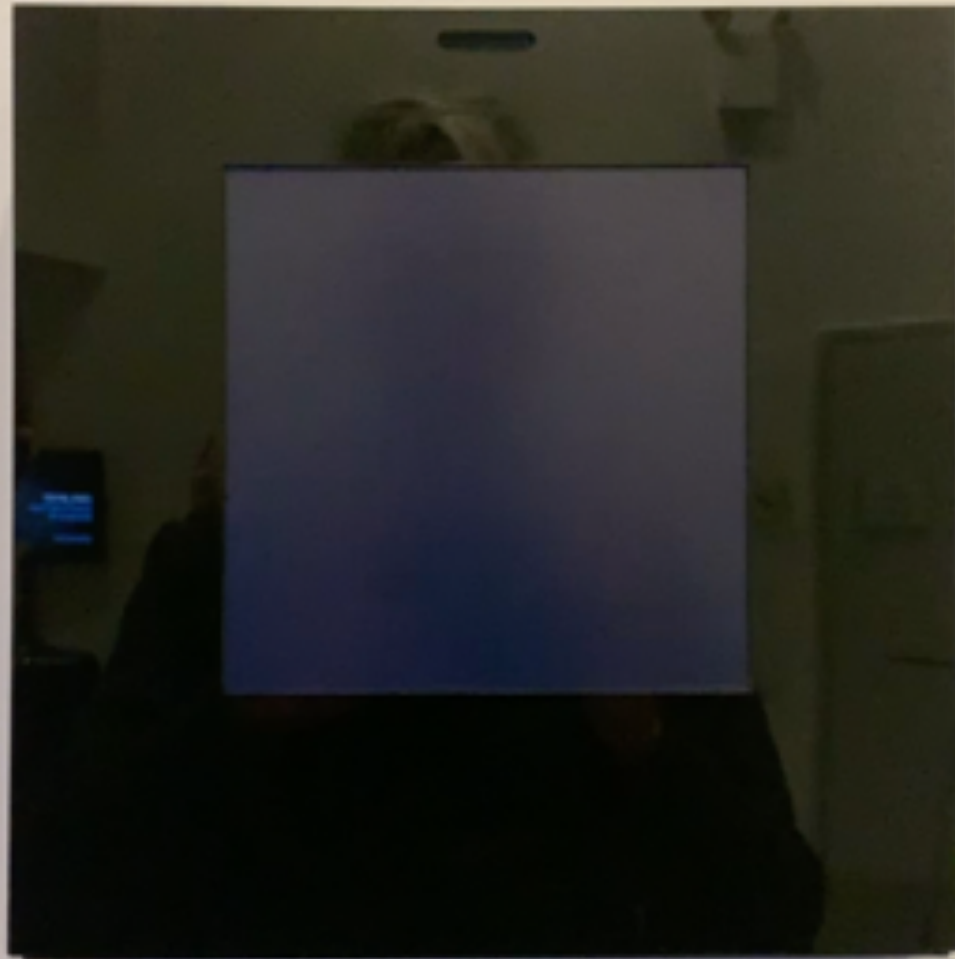
Torrey Leachman

2018

Installation view at the Museum of Modern Art, New York







Smile (SCM + The Broad Institute of MIT and Harvard, 2018)



Mat Velloso
@matvelloso



Difference between machine learning and AI:

If it is written in Python, it's probably machine learning

If it is written in PowerPoint, it's probably AI

1:25 AM · Nov 23, 2018 · [Twitter Web Client](#)

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There is a **strong** tendency of surrendering spaces of power

The logic of capitalism is *normalised*

1. The danger of amplifying structural inequalities
2. The liberation of attention
 1. What will happen with the industries that exist because the need of attention?
 2. Human attention becomes desirable
 1. on one hand you need to be rich to be given attention
 2. on the other hand, automatization is marketed as an equaliser
3. The appearance of new ethical questions (e.g. synthetic illegal data) for which we don't have a default answer
4. Designing for the algorithm

Rachel Thomas's twitter thread:

<https://threadreaderapp.com/thread/1274908170901569537.html>

Thank you!

tomas@laurenzo.net

<http://laurenzo.net>

@krahnd

*Slides available at
<http://laurenzo.net/lxai>*