The limits of the algorithmic imagination: data and sexuality

The publicity about a recent pre-print of a paper called Deep Neural Networks Can Detect Sexual Orientation From Faces (Kosinski and Wang, 2017) has generated new controversy about science and sexuality. The paper was reported as news in *The Economist* under the headline 'Advances in AI are used to spot signs of sexuality: Machines that read faces are coming' (Sept 9 2017) and in *The Guardian* as 'New AI can guess whether you're gay or straight from a photograph' (Sept 8 2017). The image below shows you some of the choreography of this - *The Guardian* followed up the HRC GLAAD statement with another article under the headline 'LGBT groups denounce 'dangerous' AI that uses your face to guess sexuality' and quoted Kosinski being perplexed by the criticisms 'arguing that the machine-learning technology already exists and that a driving force behind the study was to expose potentially dangerous applications of AI and push for privacy safeguards and regulations.'

The choreography of the mediation of the pre-print of the paper and the production of a controversy around it seemed unlikely to leave Kosinski perplexed. Media coverage of scientific claims about gay identity in the past have produced controversy. The management of this has usually been good publicity for the scientific papers, journals and authors concerned. The gay gene debates lead to notoriety and book sales for authors even when studies failed to be replicated and in fact were challenged by other scientific research. Announcing that neural networks could detect sexual orientation through a press release seemed like a move to court controversy and orchestrate PR.

In short, the pre-print claims that men seeking sex with men on a popular USA dating site have measurable facial femininity visible (to AI) in their faces. They claim this is consistent with a prenatal hormone theory of sexual orientation and that their findings expose threats to the security of gay men and women.

Kosinski entrenched his research further in both biological and moral language in the following quote: "It's a great argument against all of those religious groups and other demagogues who say, 'Why don't you just change or just conform?' You can't stop, because you're born this way," he said.' (*The Guardian*, Levin, 2017)

The research, the management of controversy and the claim to be acting in the interest of LGBTQ+ people is all very reminiscent of the gay gene claims in the 1990s. As with the gay gene studies the research subjects didn't provide consent. The rationale for what counts as a gay identity is tied to heteronormative, racist and essentialist models of identity which, along with physiognomy have also been debunked. The experimental conditions are set up to do little more than detect patterns of pixels in a set of images harvested from a dating site, sorted through "mechanical turk" labour conditions, and subject to the VGG face recognition algorithm.

The claim in the paper is that algorithms are more accurate and can see what humans can't. What the authors appear to fail to comprehend -- perhaps strategically -- is that there is no such thing as a precise definition of facial femininity and that to devise an algorithm to detect it is to fabricate such a measure. As the authors themselves acknowledge – physiognomy has been debunked as a mixture of superstition, prejudice and racism.However, what the authors do in this paper is resurrect physiognomy under the guise of new technologies: The argument seems to be that this isn't physiognomy because it is machine vision.

The resurrection of older forms of scientism and scientific prejudice in the form of new technologies is problematic whether its genomics, big data, or AI and machine learning. Highly complex new technologies are hard to understand and they become mystified and largely rest in the hands of elites, at the same time as they are very powerful knowledge producers. They are powerful and difficult to access, and studies like this bring to the fore the importance of having much greater deliberative access to what they mean for society as well as public education about their limits rather than speculative claims about their potential.

Algorithmic Imagination

'The space of imagination exists in an algorithmic context and that which cannot be computed cannot be fully integrated into the broader fabric of culture as we now live it. (…) This is the playground of algorithmic imagination. (Finn, 2017: 56 and 192)

'Machine learning turns this around: in goes data and the desired result and out comes the algorithm that turns one into the other.' (Domingos, 2015)

'Recognising the ways in which the data is cleaned up is an important counter to the seeming automacity of algorithms' (Gillespie 2012: 170)

'The algorithmic image therefore calls for pluralism in the way images are read, experienced and explored. (…) By (…) viewing the image as a picture of something (…) all other possibilities become suppressed.' (Lister, 2013)

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The algorithmic imagination appears explicitly in some discussions of algorithms (Notably Lister, Finn) and is evoked in many more. To speak of the algorithmic imagination is to evoke an imaginary through which the world is thought of and practiced in algorithmic terms and as Finn indicates this might shape how phenomena in the world are understood:

Finn's discussion indicates that the algorithmic imagination provides an explanatory framework through which things must pass – an obligatory passage point perhaps to draw explicitly on the language of STS. His use of Domingos work indicates that this passage point is expansive and performative – data and the result can be paired to create algorithms that turn one into the other. In this case the hitherto non-existent result - 'facial femininity' can be cast as the result through an algorithm that will find this in the data.

Star and Bowker state in their 2000 book *Sorting things out* that 'To classify is human'. They also say that:

> 'Information scientists work every day on the design, delegation and choice of classification systems and standards yet few see them as artifacts embodying moral and aesthetic choices that in turn craft people's identities, aspirations and dignity.' (pg 4)

The classifying instrument of the moment could be said to be the algorithm – and the question of what is computable is related to the question of how phenomena are connected to algorithms. And I would say that people's identities, aspirations and dignity are at stake in this example.

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The scope of this imaginary brings us to the question of data and another ruling ideology – that all things can be made as data –Tarlton Gillespie – in 'The relevance of algorithms' – says that 'Recognising the ways in which the data is cleaned up is an important counter to the seeming automacity of algorithms' (170)

Martin Lister also refers to the algorithmic imagination in *The Photographic Image in Digital Culture* 'The algorithmic image therefore calls for pluralism in the way images are read, experienced and explored.'

Both Gillespie and Lister offer depth to algorithmic thinking by stressing the labour of making things into data (Gillespie) and by calling for pluralism (Lister). However, in the case of the AI gayface claims the labour of data cleaning both appears in detail in the paper and is disavowed in the claims-making – and pluralism is avoided in favour of totalizing conceptual paradigm in which algorithms are neutral and gay looking photos have a predictive relationship to sexual orientation. In other words algorithms look for stereotypes.

Algorithms and stereotypes

'But since we can't say with total certainty that the VGG-Face algorithm hadn't also picked up those stereotypes (that humans see too) from the data, it's difficult to call this a sexual-preference detection tool instead of a stereotype-detection tool.' Dave Gershgorn (Quartz, Sept 16, 2017)

'Artificial Intelligence Discovers Gayface. Sigh: *AI Can't Tell if You're Gay… But it Can Tell if You're a Walking Stereotype.*

The saddest news–for all of us–is the peer review process at the *Journal of Personality and Social Psychology* allowed Wang and Kosinski to fling centuries-old turds without noticing the stink, and ignore 50 years of sociological and feminist evidence in the process. Them's some contours AI's fanboys should face.' Greggor Mattson (Sept 9, 2017)

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Sexuality and race would seem to provide some limits to what is computable, while at the same time the repertoires of stereotyping become ever more powerful. In the turn to genomics – which is the computation of genetics - in the 1990s and early 21st century geneticists were famously unable to account for race in terms of genetic difference – and

although the idea of a gay gene was given scientific credibility by its circulation in science media – an account of sexuality remained equally illusive.

Like previous mechanisms for measuring and counting sexuality this mechanism produces what it seeks – in Dominogs words – in goes the data and the desired result and out comes the algorithm that turns one into the other – in the case of gay face recognition – in go the photographs and out comes an algorithm for reading gay face – creating a mold – like the original stereotype of metal printing. I'm laboring this point because it is important in this example that the real result here is the algorithm not the specificity of the predictive power. The algorithmic imagination has some similarity to the genetic imaginary – an epistemological contest for supremacy in the hierarchy of knowledge production and weaponisation.

An article by Dave Gershgorn (Sept 16, 2017) in in Quartz magazine pointed out the obvious:

'But since we can't say with total certainty that the VGG-Face algorithm hadn't also picked up those stereotypes (that humans see too) from the data, it's difficult to call this a sexual-preference detection tool instead of a stereotype-detection tool.'

Greggor Mattson goes a bit further

Artificial Intelligence Discovers Gayface. Sigh.
Posted on September 9, 2017by Greggor Mattson
AI Can't Tell if You're Gay… But it Can Tell if You're a Walking Stereotype.

'The saddest news–for all of us–is the peer review process at the *Journal of Personality and Social Psychology* allowed Wang and Kosinski to fling centuries-old turds without noticing the stink, and ignore 50 years of sociological and feminist evidence in the process. Them's some contours AI's fanboys should face.'

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Algorithmic Methods

Identify Adult Caucasian Males

Instructions

You will see 50 sets of 4 faces. Your job is to select complete faces belonging to adult Caucasian males. Any given set can contain between 0 to 4 adult male Caucasian faces.

You can use Back and Next button to navigate through different sets. Please use the best of your intuition. We will carefully review the results to identify spammers.

We welcome your feedback! There are going to be more HITs like these!

Details

1. Some images might contain a grey space on the side. It's normal and shouldn't affect your selections.
2. Some faces might be blurry. As long as you can recognize that the image represents an adult Caucasian male, the face should be accepted.
3. Faces partially covered by hats, sunglasses and hair are considered complete as long as you can recognize an adult Caucasian male.

Examples

Wrong: non-Caucasian face — Black

Wrong: non-Caucasian face — clearly Latino

Wrong: non-adult face — baby

Wrong: non-male face — female-looking face

Wrong: incomplete face — part of face

Wrong: non-human face — cartoon or not a human

Correct: Caucasian, adult, male and complete face

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Figure S1. Instructions given to AMT workers employed to remove incomplete, non-Caucasian, nonadult, and nonhuman male faces. We used similar instructions for female faces. (Faces presented here are not the actual faces used in this task.)

I think it is worth drawing out some of the links between the question of cleaning up the data and stereotypes by looking at part of the methodology behind preparing the images for recognition:

To return to the stereotype – it is a representational device that has its origins in printing – originally the process of creating a mold for the production of metal type in printing – to stereotype is to cast from a mold and holds some of this origin in its contemporary meaning to simplify or standardize – also to give fixed form to – in all iterations stereotyping is a representational technology –the image of the person is not the person – in the case of a photograph we have a two dimensional form which is held as indexical to a person, scene or thing – scholars of representational politics have long held that the production and circulation of stereotypes can have real world impacts – such as providing a repertoire of identifications which people look to in identificatory practices – scholars such as Sharif Mowlabocus have demonstrated the propensity of gay dating cultures to quickly establish generic codes and conventions across the production of images online – gay male dating sites facilitate adoption and conformity (as well as resistance) to specific norms of desirability – which of course go on to produce the same. These are informed by other image cultures such as pornography, advertising, magazines, TV and celebrity culture. Such images cultures are iteratively linked and can be thought of in terms of perfomative representation and exchange value.

The text accompanying these images in the paper states that they are not the ones used in the actual experiment – but the representation of Obama as black – Latino as obvious category and Kosinski's use of himself as normal should give one to pause.

Algorithmic physiognomy

'More AI phrenology: Kosinski says he conducted the research as a demonstration, and to warn policymakers of the power of machine vision'
Kate Crawford, Twitter,

'Junk Science of the worst variety. What body funded this project that seeks to articulate an AI program that identifies "gay faces". This is very reminiscent of Canada's infamous "fruit machine" project from the 50's that resulted in thousands of gay Canadians being fired from government jobs.'
Mary Bryson, Facebook,

'This is physiognomy.'
Sarah Kember, Facebook

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The paper debunks physiognomy in its opening paragraphs —it then constructing stereotypical images and then reading these as documents of the real to create the text for the claims to physiognomy it makes:

The move was very clear as the responses from leading scholars above make clear.

Algorithmic Representation

There is no essential relationship between gayface and buttfucking, as any fan of the 2001 movie "Zoolander" knows, and herein lies the biggest challenge to the validity of WAK's model. (Mattson, 2017)

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END POINTS

The algorithmic imagination evokes another super narrative – a new horizon through which the world can be accounted. At the same time it returns us to the politics of representation. Algorithms in many instances take social media as a proxy for people to make people computational. The computational, algorithms and data are all constructed as complex, mystical forms – and as Gillespie also discusses they are promoted in terms of practices of algorithmic objectivity – the construction of which relies on a technicist understanding of technology as neutral – (a return to Isherwood's (in)famous dictum – I am the camera) – like all apparatus of perception – of which the algorithm is one – the apparatus itself shapes the frame, input and possible output. Which might take us usefully through Karen Barad's formulation of agential realism. Photography and film and other technologies of visualization are still caught in a double bind - on the one hand there is broad recognition that visual images are not neutral whilst on the other hand they are cited as truth telling machines through ID cards of all kinds, border and surveillance technologies, and facial recognition technologies – whilst the instability of the image is clear it can still be fatal if the person and the image of the person are not recognized as corresponding. Or (mis) recognized as corresponding to an identity they do not want to claim in particular circumstances.

But as Mattson puts it:
There is no relationship between gayface and buttfucking as any fan of Zoolander could tell you.