

THE SOA FILES

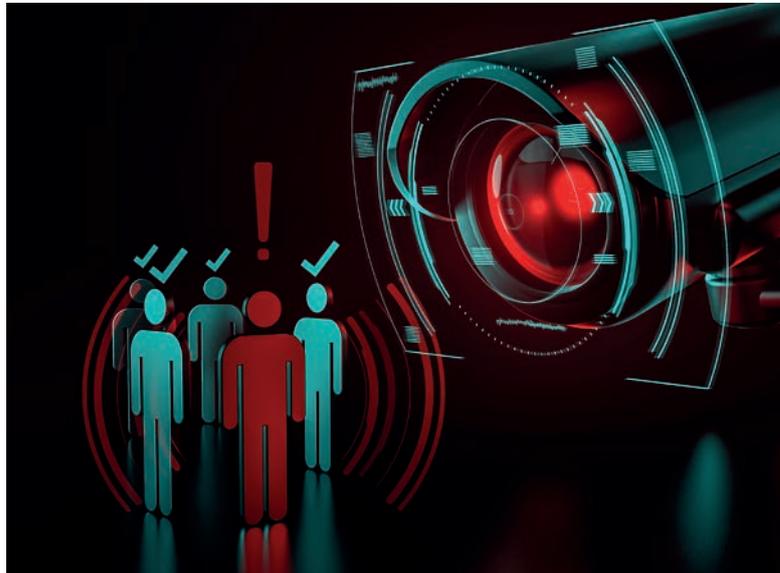
ALGORITHMS TAKING OVER TV • WHAT A SPLICE UP - YOU'LL NEVER GUESS WHAT HAPPENED WHEN THEY GENE-EDITED MY DAD • THE ARTISTS BEATING FACIAL RECOGNITION • CRISPR - IT'S FRUIT, ONLY BETTER • WIN A NEUROLINK - IT DOES THE THINKING FOR YOU •

GOTCHA! POLICE ARREST BAD THINKING SORTS

Police in the UK want to predict serious violent crime using artificial intelligence, according to The New Scientist. However, one of the world's leading data science institutes has expressed serious concerns about the project after seeing a redacted version of the proposals.

Predictive analytics is the process of predicting what someone's behaviour is likely to be, based on previous examples. This ranges from predictive text to systems that decide whether someone is likely to reoffend.

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IS YOUR COMPUTER RACIST? WHAT IS BIAS IN AI REALLY, AND WHY CAN'T AI NEUTRALISE IT?

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YOUR DATA KNOWS YOU BETTER THAN YOU KNOW YOURSELF

DO YOU KNOW YOUR SOCIAL CREDIT SCORE?

Digital scoring or 'social credit' is a technology that integrates many different types of data and tries to assign a value to individuals and their actions. A proposed system in China tries to create a standard for tracing individual actions across Chinese society, sparking fears of the control it might exert over individuals' lives.

But is this much different to Mosaic, a demographic tool used by UK councils to track household behaviour?

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YOUR FACE OR MINE

CHINA FACIAL RECOG MANIA EXTENDED TO PUBLIC HOUSING AND TRASH

Beijing authorities have installed facial recognition technology to stem illegal subletting of government-funded flats. The automated entrance gate with face scanning technology has been installed on the first batch of 13 public rental housing communities with all 59 neighbourhoods expected to be covered by the end of October.

[READ THE FULL ARTICLE HERE](#)

FACIAL RECOGNITION: A TECHNOLOGY THAT MATCHED PEOPLE TO A DATABASE OF KNOWN INDIVIDUALS OR DEMOGRAPHIC

US POLICE USING FACIAL RECOG THE WRONG WAY

New York Police Department officers have been purposely manipulating images of faces before inputting them into the facial recognition system in order to generate more matches. A false match is likely to lead to a police stop and the algorithm stands in for reasonable suspicion, the legal standard for briefly detaining a person to investigate further.

If the algorithm can be manipulated and used incorrectly, is the system too dangerous to trust?

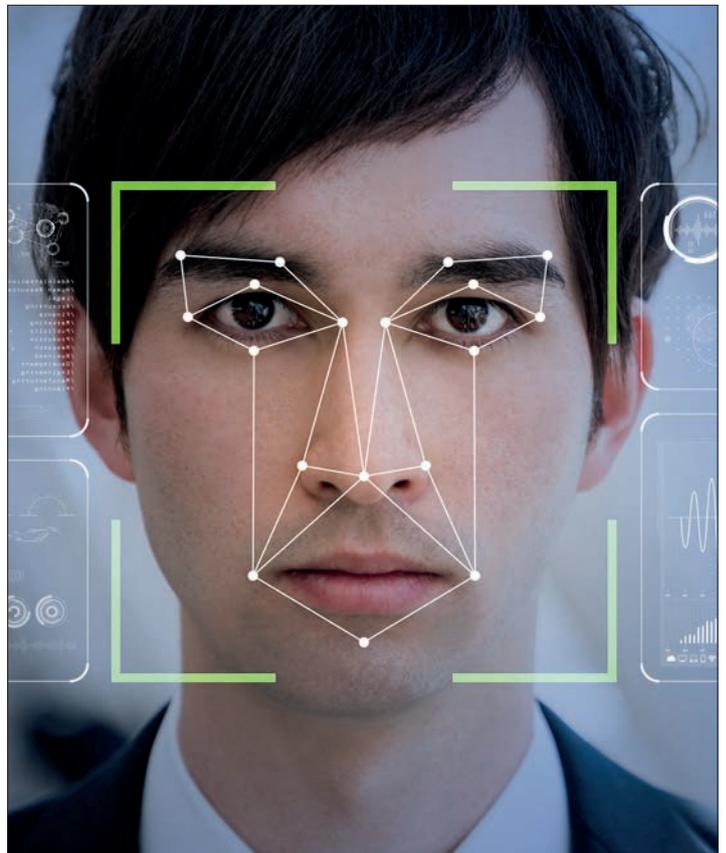
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FACIAL RECOGNITION: COMING TO A SUPERMARKET NEAR YOU

The technology is helping to combat crimes police no longer deal with, but its use raises concerns about civil liberties.

There is a growing demand for the technology in shops, with dozens of companies selling retail facial-recognition software – perhaps because, in recent years, it has become pointless to report shoplifting to the police. A combination of policing budget cuts in England and a change in the law means police focus their time and resource on other areas. However, there currently aren't laws or government policies in place to regulate facial recognition use. Police use of the technology is currently being challenged in the courts.

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CHINESE AUTHORITIES ARE USING A VAST SYSTEM OF FACIAL RECOGNITION TECHNOLOGY TO TRACK ITS UIGHUR MUSLIM MINORITY ACROSS THE COUNTRY. FACIAL RECOGNITION TECHNOLOGY - INTEGRATED INTO CHINA'S HUGE NETWORKS OF SURVEILLANCE CAMERAS - HAS BEEN PROGRAMMED TO LOOK EXCLUSIVELY FOR UIGHURS BASED ON THEIR APPEARANCE AND KEEP RECORDS OF THEIR MOVEMENTS ACROSS CHINA.

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FACIAL RECOG BANNED IN FORTH CITY

EVEN IF YOU RUN, YOU CAN'T HIDE AS LONG DISTANCE FACIAL RECOG IS DEVELOPED



HOW TO THWART FACIAL RECOGNITION

WHEN WILL THE MACHINES STOP LEARNING?

MILLIONS OF VOLUNTEERS HAVE DONATED THEIR GENETIC DATA TO THE TRAINING SET

Millions of NHS patients will have their genetic information analysed and used for research into predictive medicine under a new programme from

Genomics England. As part of the Accelerating Detection of Disease (ADD) programme, anonymised data from up to five million volunteers will be used to develop personalised treatments and diagnostic tools using artificial intelligence (AI).

Volunteers will have their genomes analysed to identify their risk of developing diseases like cancer or heart disease, and will receive a free personalised health report based on their DNA.

[READ THE FULL ARTICLE HERE](#)

POLYGENIC RISK SCORING - THE APPLICATION OF MACHINE LEARNING TO VAST DATASETS OF HUMAN GENOMES - IS LIKELY TO LEAD TO MORE ACCURATE PREDICTIONS OF YOUR RISK OF MANY NON-INHERITED DISEASES.

GENETIC DATA - IS IT WORTH THE HYPE?



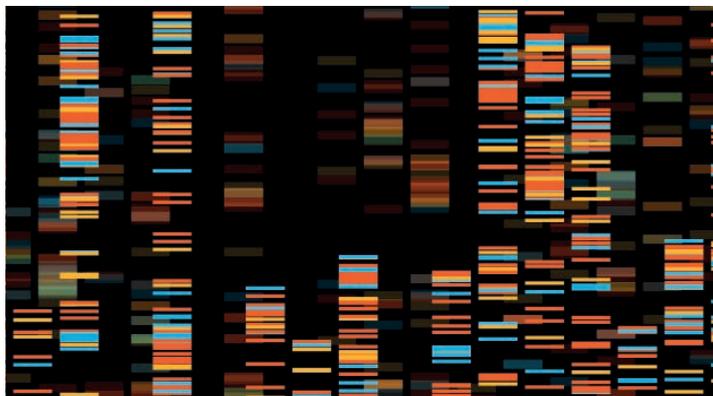
clinical benefits of genomics. Despite committing £500 million, which will soon rise to £1.1 billion, the government acknowledges that the "evidence for its clinical utility will continue to evolve." The question then is: what explains such expenditure at a time of austerity?

Genomic sequencing, a brave new world...

The introduction of genomics and AI enabled healthcare into the NHS marks the beginning of what could be a new era of personalised and preventative healthcare, catalysing a transformation of public health through early diagnosis and disease prevention. But the reality is that no one can be sure about the

The potential benefits and dangers of the NHS' work with genome data demand a well educated, informed, and engaged public debate about policy, says Edward Hockings.

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GENOMIC PREDICTION COULD TEST COGNITIVE ABILITY

Stephen Hsu (Michigan State University and co-founder of Genomic Prediction) and Julianna LeMieux (GEN) discuss applications of polygenic risk scores (PRS), and how Genomic Prediction can be used to screen low cognitive ability.

As concerns with genetic screening become more entrenched in IVF in general, the wealthy would be getting rid of diseases, whereas people of lower socioeconomic status would not. What will happen at the lower end of the spectrum? Will diseases become more of a burden?

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RISK SCORING OFFERS A BRAVE NEW WORLD - BUT ONLY FOR INSURERS AND EMPLOYERS?

The UK has been pioneering big databases that permit a new type of disease prediction called a polygenic score— basically, a guesstimate from your genome that you'll develop a particular disease.

But an effort by the UK's own health minister to promote the concept this week didn't go as planned: instead of making the case for the tests, he inadvertently showed why they could be a waste of time and money.

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MINORITY REPORT-ING AND PREDICTIVE ANALYTICS

DESPITE A ROCKY START, CHINA CONTINUES TO DEVELOP A SOCIAL CREDIT SYSTEM.



The Chinese government is formulating a nationwide social credit plan by 2020. The proposed system will create a standard for tracking individual actions across Chinese society, and reward or punish accordingly.

It's unclear how fairly such a system could impose penalties on individuals, or how easy it would be to get off blacklists. Still,

authorities already claim to have the records of 990 million individuals and 25.91 million enterprises.

However, academics doubt whether such a system can be created. The overarching concern, whether or not a social credit system reaches a national scale, is the potential for abuse.

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WHAT ARE THE CONSEQUENCES OF HAVING 'BAD SOCIAL CREDIT' IN CHINA?



WHAT IS BIAS IN AI REALLY, AND WHY CAN'T AI NEUTRALISE IT?

Selection algorithms everywhere are exhibiting traits that appear to be racist, sexist, and otherwise discriminatory.

A convolutional neural network (CNN) is a type of learning system that builds an image in memory that incorporates aspects of all the data it's been given. So if a CNN is taught to recognize a printed or handwritten character of text, it's because it's seen several examples of every such character, and has built up a "learned" image of each one that has its basic features.

If a CNN model is trained with a variety of human faces, it will have built an amalgam of those faces in its model -- perhaps not necessarily a photograph, but a series of functions that represents the basic geometry of a face, such as the angle between the tip of the ear, the top of the cheekbone, and the tip of the nose. Train that model with a series of faces of known terrorists, and the model should build some basic construct that answers the question, "What does a terrorist look like?"

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CAN WE USE AI TO PREDICT SOCIAL UNREST?

A team of researchers has created an artificial intelligence (AI) system that mimics human religiosity, laying the groundwork for psychologically accurate AI that can predict human behaviour.

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THE FUTURE OF SHOPPING?

With AI's arsenal of machine learning, deep learning and NLP, consumer analytics can take some of the unpredictability out of predicting buying patterns and up conversion rates.

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SHOULD THE POLICE BE ABLE TO INTERVENE BASED ON THE PREDICTION THAT YOU MIGHT COMMIT A CRIME?

Police in the UK want to predict serious violent crime using artificial intelligence, *New Scientist* can reveal. The idea is that individuals flagged by the system will be offered interventions, such as counselling, to avert potential criminal behaviour.

However, the Turing Institute say there are serious ethical issues with the project and a question whether it is in the public good to intervene pre-emptively when an individual may not have committed a crime or be likely to do so in the future.

National Data Analytics Solution (NDAS), uses a combination of AI and statistics to try to assess the risk of someone committing or becoming a victim of gun or knife crime, as well as the likelihood of someone falling victim to modern slavery. However, the system risks limiting police enquiries and reinforcing bias. An inherent difficulty in the system is knowing whether the predictions would have turned out to be true and the crimes committed had the police not intervened.

The system, called the

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OR IS PREDICTIVE POLICING A SCAM?

CAN WE USE AI TO DETERMINE HOW STUDENTS SHOULD BE TAUGHT?



CRISPR/CAS9 - A METHOD THAT ALLOWS GENES IN LIVING ORGANISMS TO BE EDITED

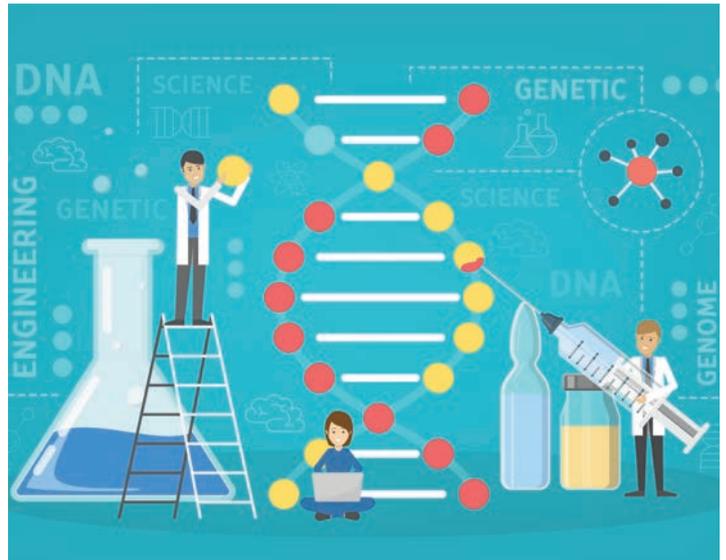
CRISPR HAS A SURPRISINGLY WIDE RANGE OF APPLICATIONS

Scientists are using gene editing technology CRISPR to make pigs suitable organ donors for humans. Viruses found in pig DNA is snipped out to create virus-free pigs for organ donation. CRISPR is also being used to modify genes in the immune system to prevent the human body from rejecting the organs, though clinical trials are likely to be years away.

to alter the genetic make up of crops to make them more resilient and their fruit up to 25% bigger. Other uses include changing the colour of plants and flowers, modifying human embryos to remove genetic error which cause heart disease, creating treatments for cancer and blood disorders, and eliminating mosquitoes which carry malaria.

CRISPR is also being used

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CRISPR IS BEING USED TO TACKLE DISEASES THAT INCLUDE:

GENETIC BLINDNESS

For the first time, a study based in the United States will test the gene-editing technique known as CRISPR inside the human body. The goal of the test, officially called AGN-151587, is to treat Leber congenital amaurosis (LCA), for one of



the most common forms of inherited blindness. The companies behind the tests say they're now open to patient enrollment.

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SICKLE CELL ANEMIA

For the first time, doctors in the U.S. have used the powerful gene-editing technique CRISPR to try to treat a patient with a genetic disorder.

"It is just amazing how far things have come," says Victoria Gray, 34, of Forest,

Miss. "It is wonderful," she told NPR in an exclusive interview after undergoing the landmark treatment for sickle cell disease.

Gray is the first patient ever to be publicly identified as being involved in a study testing the use of CRISPR for a genetic disease.

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The world's largest public health authority has weighed in with the most authoritative statement yet on the use of Crispr to alter the DNA of human babies. Eight months after a rogue Chinese scientist revealed he had secretly created the world's first gene-edited children, the World Health Organization is asking countries to put a stop to any experiments that would lead to the births of more gene-edited humans.

On Friday, the WHO's director-general put out a statement urging "that regulatory authorities in all countries should not allow any further work in this area until its implications have been properly considered."

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MEANWHILE, W.H.O. HAS CALLED FOR MORATORIUM ON EDITING GERM CELLS



COULD THE FIRST GENE-EDITED TWINS FACE UNEXPECTED CONSEQUENCES?

THE FIRST EDITS TO HUMAN EGGS OR SPERM MADE IN CHINA - THE FIRST INHERITABLE EDITS

Content collated by The Society of Authors for the Writing Science into Fiction event, 12 October 2019 in Durham.

For more information on the event, please visit www.societyofauthors.org/Events/Events/Writing-Science-into-Fiction-October2019