NEW WAYS OF SEEING
Episode 3: DIGITAL JUSTICE
BBC Radio 4, Wednesday 1st May 2019

> **Now on BBC Radio 4: 'NEW WAYS OF SEEING'.   In the 1970s, the writer John Berger created 'Ways of Seeing', a TV series and book in which he revealed how images – from paintings to photographs – can influence our perceptions of society, and of ourselves.   Almost half a century on, the artist JAMES BRIDLE is building on John Berger's themes, for our digital age. This week, with the help of other artists, James looks for outdated attitudes and prejudices that are "hard-wired" in today's technology.**

`0'00"`

MOREHSHIN ALLAHYARI: You'd be amazed how many talks I go to, how many conversations, random conversations, and people ask me questions like "did you use – can you actually use the software yourself?" That would happen so much, it was a really clear experience of when you collaborate with a male person, how people… just assume what it is, how it is. So, we have to try to take over this space, and turn it around. But also, in that process… you know, it's made by us, for us. If a white man come and try to create this space – even if they're like, very feminist – it will never be made in a way that, say like, a collective of women and women of colour try to make it.

MUSIC: Outside The Glitch – Epoch

`0'58"`

In 2015, Louise Selby – a paediatrician – went for a work out at her local gym, in Cambridge. But when she tried to swipe into the changing rooms, her membership card didn't work. It turned out that the gym's computer systems assumed that because she had the title "Doctor", she must be a man, so it denied her access to the women's changing rooms. When she complained to staff, she was told she'd only be able to get in if she dropped her title.

MUSIC: 'New Ways of Seeing' theme

Back in 1972, in his landmark series "Ways of Seeing", the writer and critic John Berger described how women were represented in European painting as the subjects of a "male gaze". Looking at these paintings, one could see the way women were regarded:

JOHN BERGER: "Women in the European art of the oil painting are seldom shown dancing; they have to be shown languid, exhibiting a minimum of energy. They are there to feed an appetite, not to have any of their own."

These paintings reproduced and then reinforced the dominant social attitudes of their time. Berger's guests hoped that with new forms of representation, new attitudes might develop:

UNIDENTIFIED GUEST SPEAKER, from 'Ways of Seeing': "I find it quite impossible when I look at the paintings that you show in your film – I can't take them seriously, I cannot identify with them […] whereas with photographs you can feel that is potentially me – although it probably isn't..."

Instead, what seems to have happened is that the same old attitudes are hardwired into new technologies.

John Berger also proposed a new way of seeing, in order to change our relationship with the world. As he put it: "If the new language of images were used differently, it would, through its use, confer a new kind of power."

3'02"

New technologies have fundamentally changed our relationship with images, and thus with power. But new ways of seeing haven't always kept up, not least because technology itself is increasingly difficult to see, as it disappears behind screens and into inscrutable code. Attitudes and prejudices become harder to question – unless we rethink our relationship with machines.

STEPHANIE DINKINS: I do feel that there's a great possibility, this real, fertile possibility, if we get this right, where we are augmented and have partnerships with these machines, right? Because my feeling is that there's a world of machines and algorithms and digitalia coming, and we need to prepare for it so that we can work with it rather than fear it. What is it that we want? There's this great opportunity to think, what is it that we want, how do we want the world to look, how do we want to be able to be in it? And right now, people are like "well, the machines are taking our jobs. What are we going to do? We won't have work, we won't have meaning." Instead of pushing those questions, can we push the questions of "what does it mean? What do we do with this extra time?" and "how do we kind of capitalise on the way that humans uniquely think and push that further or make our capabilities go further?" Yeah it's a possibility. That's what excites me about it.

4'35"

MUSIC: Nobukazu Takemura – Sun Trap In The Sea

That's Stephanie Dinkins. She's an artist, researcher, and teacher, who works with new technologies to try to understand their effects on different communities.

STEPHANIE: What does it mean that algorithms are coming our way? You know, these things that decide if we get a mortgage, whether we have a longer or shorter jail sentence, whether we pay higher prices for things that we see in a catalog, like, what do these algorithms mean to us? How do we recognize them? How do you start thinking about, perhaps, these decisions are being made

by some kind of digital or computational means? And is there a way for us to try to game the system?"

Supposedly intelligent algorithms are now being used by police forces around the UK – to decide where they should patrol, and who they should hold in custody.

In the United States, similar programmes are used by judges to make decisions about prison sentences, based on the likelihood of convicted criminals reoffending. When independent investigators tested this software, they found it was systematically biased against people of colour, recommending them for longer sentences – even when they were less likely to reoffend than white people. The software behaved that way, because it was based on years of bad data: data produced by racist policing and discriminatory sentencing. That was all it knew. This is how generations of bigotry become embedded in new technologies, just at the moment we're publicly repudiating them.

MUSIC: Ellen Fullman & Okkyung Lee – The air around her, part 1

FX – from Stephanie's project – her conversation with 'NTOO' (Not The Only One)

In response to this, Stephanie Dinkins is creating her own artificial intelligence. It learns about the world from a very different set of stories:

6'33"

STEPHANIE: I've decided that I need to make some kind of AI entity to put into the world, that comes from a very particular position because I'm trying to code it and build it out with people of color doing most of the work. It is what I call a "memoir" of my family, based on three generations of women. We span about 100 years of information – we're having an oral history project – we're sitting down and talking to each other, which has been wonderful, because we're just getting that family history, using those interviews as the data for a recursive neural network. So, a deep learning algorithm. And letting the algorithm then take that information, and tell our story from its point of view.

7'21"

For years we've been hearing that, one day, artificial intelligence will come along and make our lives easier – whether we want it to or not. And some kind of artificial intelligence is finally here, in the form of software that learns from experience, improves itself, and can even outsmart us.

MUSIC: Caterina Barbieri – Intcaeb

FX – ALEXA / SIRI

Alexa, from Amazon – and SIRI, from Apple – are examples of smart assistants. They don't just answer your questions, they learn about you by doing so, in order to get better at serving you – however creepy I for one find that to be.

But creepiness is one thing – outright discrimination is another.

Amazon has built a global business by automating everything, from the inside of warehouses to the infrastructure of the internet itself. They also receive a lot of job applications. So, a few years ago they started writing some new software that would scan those applications, and select the best ones. The holy grail was a programme which would read hundreds of CVs, pick out the best, and the company would just hire those people. And they built something clever to do it – a machine learning programme which compared all the CVs to all the successful hires Amazon had made previously.

But then, they realised their programme was systematically downgrading women applicants. Terms like "women's soccer team", or the names of women-only colleges, caused a CV to be marked down. Because Amazon had historically hired men so much more frequently, their system had learned to think that men were better for these jobs than women.

Even when Amazon realised what was happening, they couldn't fix it. Eventually the programme was scrapped. The biggest automation company in the world still couldn't automate equality.

9'30"

Stories like this made Stephanie Dinkins want to explore these technologies. She realised it wasn't just cutting-edge AI that had deep social implications, it was the technological processes we encounter every day. In response, she created Project Al Khawirzmi – named after the Persian mathematician who gave us the word 'algorithm'.

FX – Al Khawirzmi project space

At the project space in her neighbourhood in Brooklyn, local residents learn about technology – and learn how to apply its lessons to their own advantage:

STEPHANIE: Project Al Khwarizmi is about working with people, using what I call "algorithms for everyday living" – so, sets of steps. If we think of an algorithm as a set of steps to get something done, how do you take the steps that you use to do something like, say, brush your teeth, right? That's a classic example of a basic algorithm. And you change one little step of it. So, say you brushed for 10 seconds every day, and now you brush for a full two minutes – how does that change your life, or outcomes in your life? And then, how do you make simple changes to – how do you recognise where the algorithms might be, that are really the invisible type? Like, the type that if a judge is – if you're standing before a judge, and they are trying to come to a decision about who you are, what kind of sentence you should be given, why? How do you recognise that?

How do you question it? How do you get your lawyer to question it, who probably wasn't thinking about it? How… do you start to pull that up? And what does your awareness of those systems do for your ability to move forward? So, we just try to engage the systems, build our own algorithms, and really look at back ends of things as well. So, how does like a Google Home or Siri understand its answers? If you build your own, based on a cultural attitude or something that you're really invested in, you start to see well – oh! They're putting in information, then they're putting in answers… this is how they're making the system work. It's like – questions about a community, answers that are biased, how does that affect it? And I need to call it out. I'm really just trying to get people thinking about these things.

<mark>11'55"</mark>

Intelligent systems are informed by human decision-making. The only way to ensure these technologies don't just repeat the mistakes of a past from which they're supposed to be learning, is by involving people who weren't part of that decision making before.

And by increasing the diversity of people who <u>build</u> these systems, we'll expand the range of people who actually <u>learn</u> from the experience – not just about computers, but about how society itself works.

It's important to remember that it hasn't always been this way. The earliest computers weren't machines at all – they were people. And most of those people were women.

FX – 1950s computers / typing / coding montage

In the 1950s and 60s, at the birth of the technology industry, women made up the majority of computer programmers. Like typing, and book-keeping, this was considered to be women's work. It also played into stereotypes about women's expertise in painstaking and repetitive tasks. As a result, women contributed much of the early code to projects like IBM's mainframes, and NASA's space missions.

Women's predominance in this field held true, into the 1980s – when men started to overtake women in professional employment. Men also became more likely to enrol in computer science degrees, which in turn put them ahead in the job market.

This has been blamed partly on the home computer – a complex piece of hardware which, on its arrival, was culturally coded as "male" – just as construction toys had been marketed at boys, for decades:

MECCANO ADVERT: "A boy and his Meccano turns a boy's world into a man's world. Meccano – for your boy."

The subsequent rise of computer games – also more likely to be aimed at boys – put girls at an further disadvantage:

ATARI ADVERT: "Give a man an Atari game, and he'll turn into a little boy…"

Initiatives like 'Women in Games' and 'Black Girls Code' are challenging the status quo – but they have a long way to go. At Google, for example, recent figures show that only 20% of employees are female – and only 1% are Black.

<mark>14'20"</mark>

Moreshin Allahyari is an artist born and raised in Iran, who moved to the United States in her twenties. A few years ago she co-wrote a manifesto to push "additive manufacturing" – 3D printing – to its absolute limits. Her collaborator happens to be a man.

MOREHSHIN: People ask me questions like "did you use – can you actually use the software yourself?" Or "did you use someone else to help you 3D print it?" With the 3D "Additivist Manifesto" it was me and Daniel Rourke, and it was really funny – all the time, people would assume that he is the tech person. I was actually more of the tech person, he was more of the writer! But people would just assume that… and would go to him and ask him all the tech questions about the 3D printing and he'd be like "I have no idea, you have to ask Morehshin". That would happen so much, it was a really clear experience of when you collaborate with a male person, how people just assume what it is, how it is.

MUSIC: Outside The Glitch – Lovely Apocalypse

<mark>15'23"</mark>

Morehshin uses 3D printing to address contemporary political issues. But even with the latest technologies, she still sees the same processes of marginalisation at work:

MOREHSHIN: I would hate to think there's a tool that is gendered in that way – like, I wanna take over that space and make work that uses that tool. Like, I don't wanna push away 3D printing cos I'm like – oh, it's a man thing. I wanna be involved in it, I'm gonna use it, I'm gonna be good at it. So that's always been my position. And one thing that has been really amazing is, being in so many "fab labs" and maker spaces – and seeing so many women there. And feeling like, oh my God, this space is – it feels good cos there's so many other women in this space. But I'm always scared of a scenario where women get pushed out because it gets taken over. But, I guess the only way to not let that happen is to participate in it as much as possible. And – I don't wanna sound so hopeful, (laughs) because we've been fighting for so many years, and we're still having to fight for so many things – that I'm like why? Why are we still in here? So technology, there's some kind of power to it, in the way that I use it.

Morehshin Allahyari's work reproduces – or even, resurrects – pre-Islamic goddess figures, as well as sculptures destroyed by Isis in Iraqi museums.

Inside those printed sculptures she embeds their cultural and mythological stories, as well as instructions for remaking them:

MA: There are memory cards and flash drives that include all the research I've done about the artefacts, my email correspondence with scholars and historians, back and forth, for many months, to gather reliable information, to images from the process of making the work, to 3D printable files – meaning if you have access to these files, you can reprint these. So I was thinking of the sculptures as time capsules, ways in which you can save and archive this information for future generations. Sharing this knowledge – the more people that have access to this knowledge and information, the less this history can be forgotten and removed.

<mark>17'45"</mark>

Isis isn't Morehshin's only target in this work. She's equally concerned about Western museums and institutions appropriating these histories. Like sexism and racism, colonial attitudes can be perpetuated by technology. It's a process we might call "<u>digital</u> colonialism":

MOREHSHIN: Digital colonialism is this idea of how certain technologies have been used by dominant countries, cultures, demographics, as a way to colonise other countries, cultures, demographics. With the case of my work it's very focused on this idea of cultural heritage. So, how these tools like 3D printers and 3D scanners have been used as tools to reconstruct different cultural artefacts from the Middle East, or Africa etc, by these Western institutions, companies that go and 3D scan, let's say, different artefacts or historical sites, and they have ownership of this digital data. They make profit off it, they won't give free access – they just use the model, the actual model, as a way to 3D print more of it, and they sell it. There are so many examples of this. Right now, you can go online on Neu Museum in Berlin, and order up to ten of these Nefertiti head sculptures. So literally this is a new thing – when we think about historical colonialism, if we go to the Met or the British Museum, we understand colonialism in that sense – "oh, wow, look at this crazy huge thing that they brought from Egypt, did they get permission for it?" – I mean like no, mostly. So we understand it in terms of physical objects. But when it comes to digital colonialism, there's still a long way for people to actually see that as something that matters, equally. This ownership of data, of material, and how that can be turned around as something that can be made profit off, and also access, and also copyright.

<mark>19'55"</mark>

Technology shapes our imagination, and our way of seeing the world. But when we use these tools without thinking, we're looking through a very old lens, much older than the tool itself.

What would it mean to reimagine these technologies? To make them more welcoming, and more representative? To fundamentally challenge the way they work – and thus, reshape our expectations of society?

Zach Blas is an artist and filmmaker who lives and teaches in London. For him, this re-imagination involves the physical structure of computers themselves.

ZACH: To give you just a really clear example of, how could a technology have certain hetero normative framings, into its very architecture… you don't have to look further than plugs, electrical plugs. Often in many countries around the world they're gendered "male" and "female" based on pinhole configuration. So when you think about it, a male plug has to be stuck into a female socket. So, suddenly you have this kind of metaphor of "heterosexual intercourse" for electricity to work. And you know, that is interesting! (laughs) That's an interesting situation. So, the first work I made in queer technologies was trying to think about the gendering of plugs, and imagining a set of options beyond male and female, and different types of configurations that would not just be what I think of as like "the missionary sex position".

MUSIC: Visible Cloaks & Yoshio Ojima and Satsuki Shibano – Stratum (RVNG Intl.)

21'38"

Like Stephanie Dinkins with the Al Kwahrizmi project, Zach Blas didn't just want to point to the problems with these kind of assumptions – he wanted to give everyone the tools to think about them, and maybe change them. So, he built his own response to heteronormative electronics:

ZACH: At the time, I went to RadioShack, a very popular consumer electronics store all across America. And I bought a set of gender changers. Literally, this is the name of these technologies when you might want to change a plug that has, like, 16 or 24 pins, you know when you want to change its gender meaning, if you want a plug that has pins to suddenly have holes or sockets. So, I bought these RadioShack gender changers, and then basically took them apart, fabricated different technical elements, and basically, like, built them back up with different pin hole configurations, and then actually redesigned the packaging, and, um, basically created this queer technologies version of the gender changes that could be put back into stores.

MUSIC: Lady Gaga – Bad Romance (heard playing quietly in RadioShack store)

I think there's a striking difference between encountering a work of queer liberation in an electronics store, and encountering it in an art gallery. We're used to asking these kind of questions in spaces dedicated to art… but we're not always very good at asking them in the rest of the world – or applying the answers. Zach Blas' work uses the incredible pervasiveness of our digital tools, the fact that we use them for mundane tasks every day – to bring such questions into unexpected places.

These "Queer technologies" don't just represent, or give voice, to non-heteronormative experiences. Rather, queerness is a way of seeing and questioning the world that discounts all of our usual assumptions. It insists that it's possible to remake the world differently – if we can only see it differently.

ZACH: Queerness for me has never really been about identity politics. It's a broader practice that's about pushing against certain kinds of norms and standardizations. But also, it's not just critique, it's also about having certain kinds of desires that go beyond the present. Like, longing, wanting something else beyond the present. And I really connect with that a lot, I feel like it's in the work. I feel like "longing" is really in a lot of my work, if you look for it. I think, as an artist, I don't have the answers, necessarily, but what I try to do is, bring that kind of desire and longing "square" into the terrain, and connect it to certain kinds of discursive framings, or ways to articulate this, that sync up maybe with broader social political concerns or movements.

MUSIC: TV On The Radio – Killer Crane (instrumental)

"Longing" isn't something we often associate with technology. When 'longing' raises its head, its usually in the form of the desire for something new – the latest update, or the shiniest phone – rather than the desire for something different.

This is the radical possibility that still exists within our technologies. They don't just have to reinforce existing power in the present… they might allow us to remake it, in more just and equitable forms. To do so requires us to see not just these technologies, but our whole society, through a very different lens.

Technology has the power to constrain and to control us. But when it meets the real world – real people, and real bodies – it can often serve to reveal what we've previously refused to see: the incredible efflorescence of ideas and identities which have, in reality, been here all along.

It used to be that you could only identify as "male" or "female" when you joined a social network. A few years ago, Google Plus added the option of "other". That pleased some people, but it still didn't feel very welcoming. Under pressure, in 2014 Facebook released a list of 51 gender identities that users could select from. Later that year, following consultation, they increased it to more than 70. And a year later, they gave in and allowed anyone to type in their own identity for themselves. It seems the more we try to control and categorise the world – to stuff everything into little boxes and lines in databases – the more of life spills out.

As the artists we've heard from constantly remind us: our agency in the future will depend on our understanding in the present of the way technology has operated in the past. And, it will also depend on our desire to build not better machines, but a better world:

STEPHANIE: Trying to build in this understanding of each other, I think it's super important. So if we're thinking about systems that touch all of us, we have to think about systems that know all of us, to some degree. And if that's a translation, or the idea that I'm going to put myself in your space for a few minutes to even think about that – like, I think we're worldbuilding right? It's like, aAn important step in worldbuilding! Yeah.

music ends

27'30" ends

At the same time next Wednesday, James Bridle meets more artists who are trying to build a better world, by reshaping technology. 'NEW WAYS OF SEEING' is produced by Steve Urquhart. It's a Reduced Listening production for BBC Radio 4.