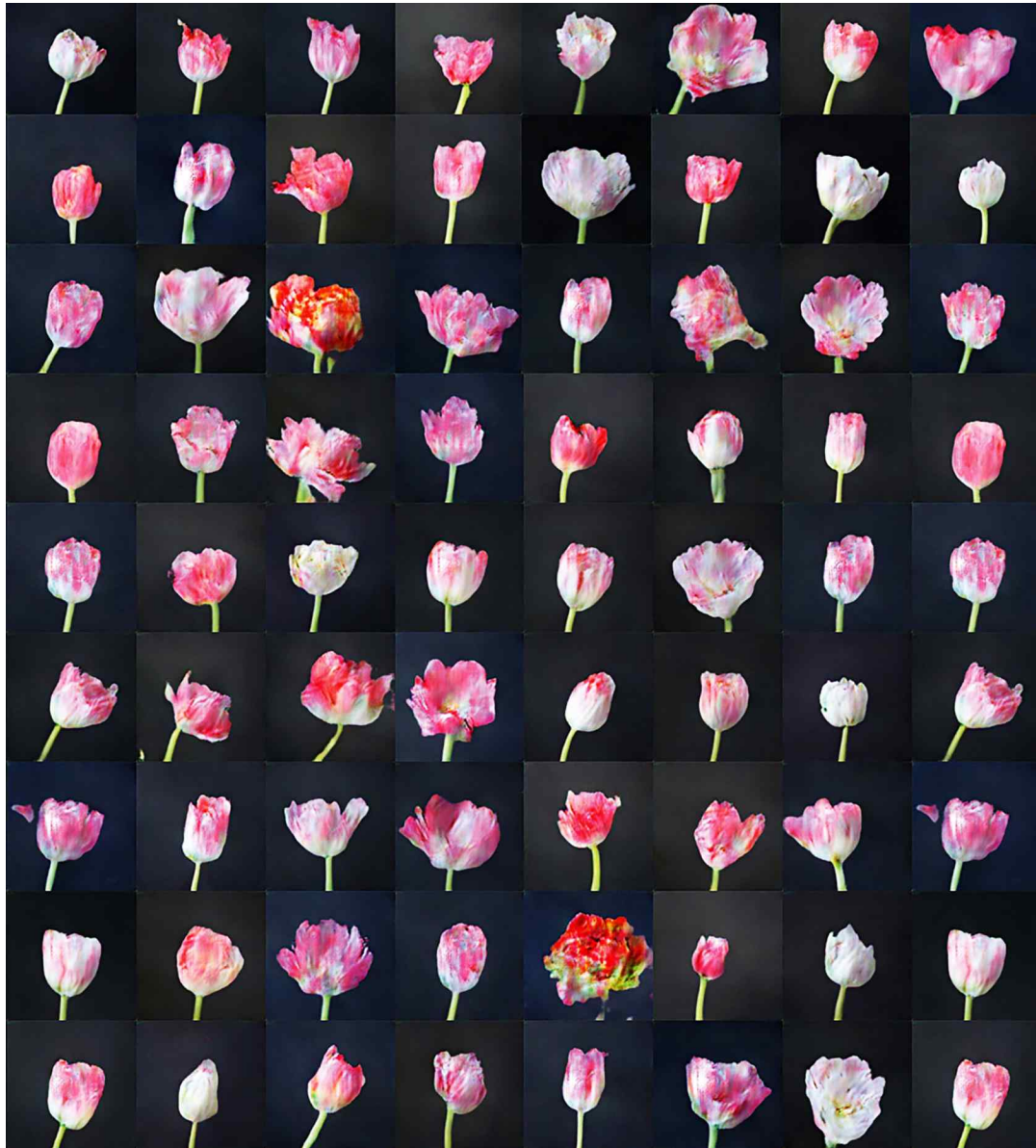


Artificial intelligence: the art world's weird and wonderful new medium

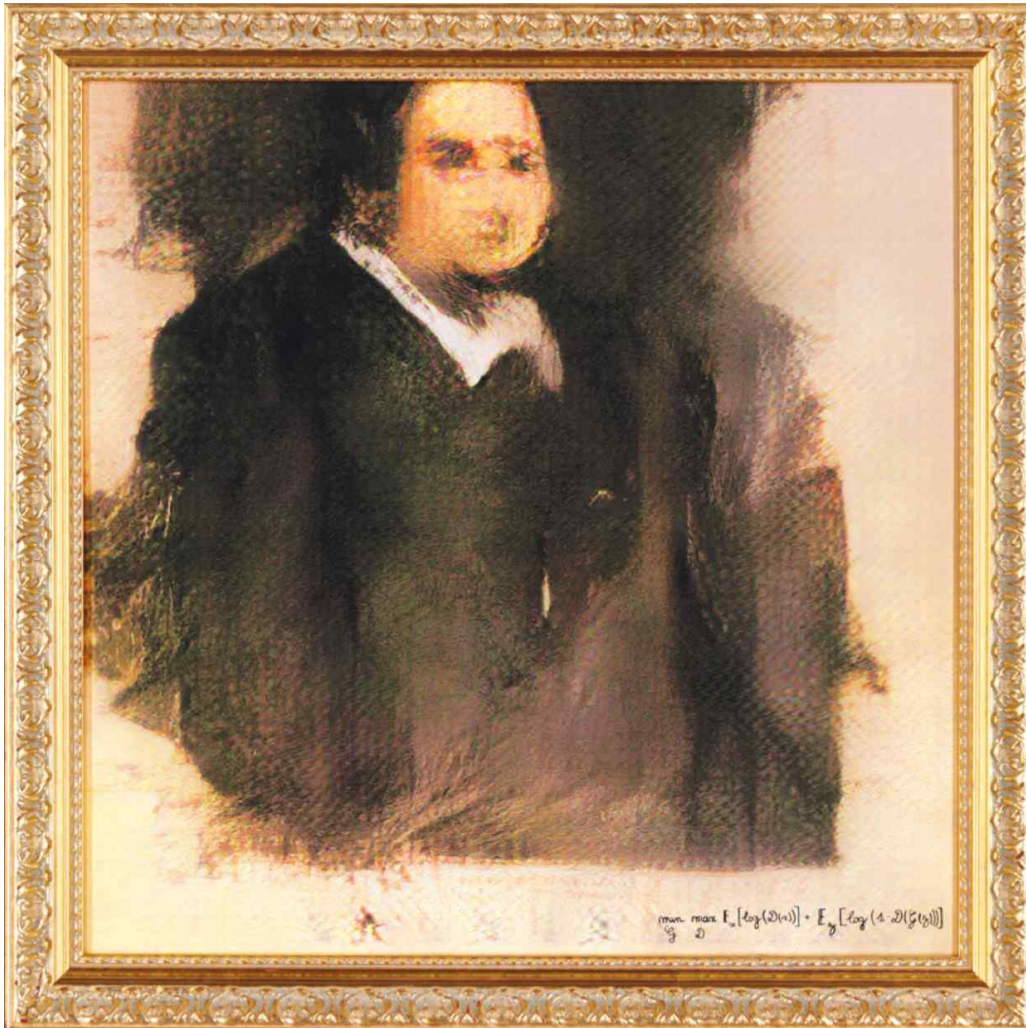
The brave new world of AI-generated artworks is captivating venerable institutions and pioneering collectors, says Francesca Gavin, 2019



Mosaic Virus by Anna Ridler will appear in the Barbican exhibition AI: More Than Human

Last October, an ink-on-canvas [portrait](#) created using artificial intelligence was sold at Christie's [New York](#): the first AI-generated artwork to be offered by a major auction house. The estimate was \$7,000-\$10,000. It went for \$432,500. While the "is it art?" debate may rage, as it did once around [photography](#), the sale brought AI-generated painting, sculpture and screen work into focus as the new artistic medium to collect. Rather than an autonomous being with its own creative impulses, or a tool for creativity, AI is itself the new medium – one shaped by human intervention. This is no artistic cul-de-sac; some of the biggest artists in the world are using AI in

their work, leading [galleries](#) are giving it wall space – and early adopters are becoming pioneering collectors.



Edmond de Belamy by Obvious, which sold at Christie's for \$432,500

The inclusion in the [auction](#) of the work, Edmond de Belamy, by French collective Obvious, was instigated by Richard Lloyd, international head of prints & multiples at [Christie's](#). "I was attracted by the fact that it looks – initially at least – to be the work of a 'human' artist. We thought it important that people's first take on an AI artwork be without preconceptions," he says, explaining that this way viewers could judge whether they liked it before they realised how it was created. The portrait was made by feeding a computer, or "deep neural network", with 15,000 reference portraits. The AI was then trained to recognise what a portrait was and create its own using an algorithm. The result is a series called La Famille de Belamy, inkjet prints on canvas in gilded wood frames, signed with the formula of the algorithm used. The three remaining pieces are available to buy from Obvious.

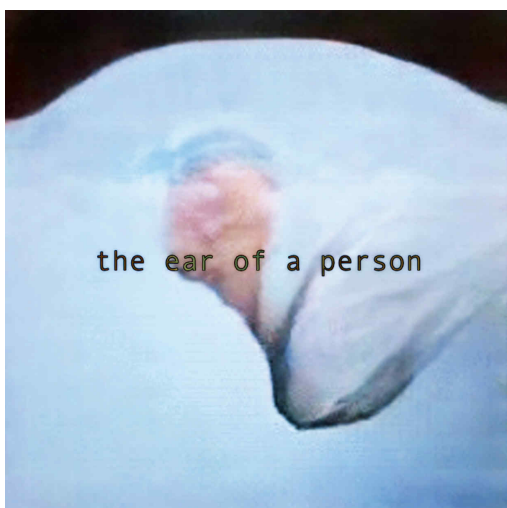
But Obvious do not come from a visual-art background, something that has dismayed many artists working with AI, data, coding and algorithms. How these artists use AI to create works is immensely varied. There are AI-assisted paintings riffing on Yves Klein's Anthropométries by experimental NYC multimedia artist Addie Wagenknecht (price on request) – in which she programs a robot with an algorithm to paint a canvas, but reclines nude in its pathway to obstruct it – while the multichannel installation by pioneering [digital artist](#) collective JODI (works from

£4,500) trains a computer to play noughts and crosses. What unites them is a self-aware exploration and critical examination of AI, and its potential and limitations, and the fusion of human creativity with that of the machine or algorithm. In this it significantly differs from traditional technology-driven artworks.



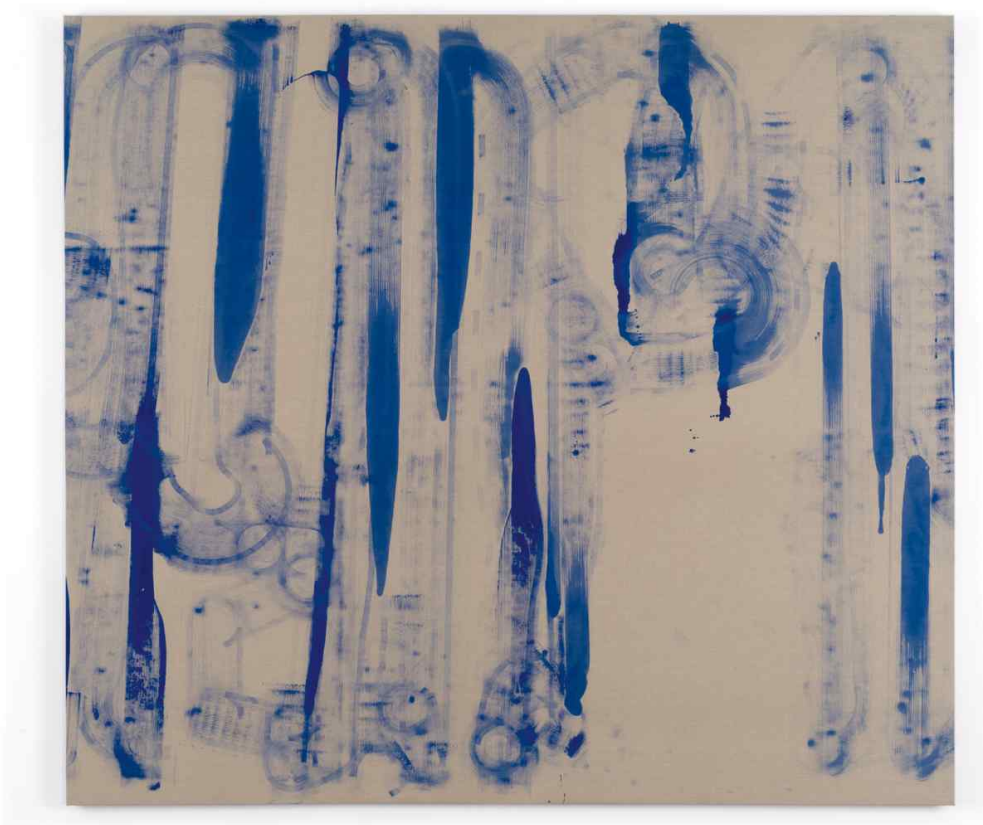
Memories of Passersby I by Mario Klingemann generates a never-ending succession of portraits

Some of the earliest examples of screen-based AI art were created with DeepDream – a computer vision program devised by Google engineer Alexander Mordvintsev and made available to the public in 2015 – which uses a neural network to create disturbing colour-saturated psychedelic reinterpretations of images. “This medium communicates an entire energy system of imagery, data and references,” says Aaron Moulton, creative director of LA gallery Nicodim, which has included works using DeepDream in a number of shows – including screen-based pieces by Alexander Reben (works from \$5,000).



Closed Loop by Jake Elwes

More recent advances in AI art often use GANs or generative adversarial networks (which was the medium behind Obvious' portrait). These neural networks are loosely modelled on neurons and synapses in the brain, mimicking how humans recognise and recreate images, music, speech and prose. Take Closed Loop, a piece by British artist Jake Elwes (screen-based works from about £1,500), where two AIs play a game of visual Ping-Pong. One shows an image, the other describes that image in words written on a screen. The first then tries to illustrate the written description. Not only is Elwes using AI as a medium, but he is critiquing its abilities. GANs are in essence algorithms that are fed huge data sets of images, from which they learn about certain features and then are able to make their own conclusions or creations. Artists have thus far mostly used this to produce screen-based pieces, but audiovisual works, [sculptures](#) and paintings are also emerging – notably by Wagenknecht and German digital artist Mario Klingemann, artist-in-residence at Google Arts & Culture, the virtual [museum](#) web project.



Self Portrait – Loneliness Is What We Can't Do For Each Other, by Addie Wagenknecht

Super-curator Hans Ulrich Obrist has helped to make AI central to the programming of the Serpentine Galleries, where he is artistic director. Following digital commissions for their website, AI most recently featured in shows by American simulation artist Ian Cheng and French multimedia art icon Pierre Huyghe, and can be seen in a forthcoming one by the German writer, artist and filmmaker Hito Steyerl (opening March 6). "I want [exhibitions](#) in an analogue age to be like living organisms," he says. For Obrist, AI works that constantly evolve and question themselves help "art to make the invisible visible", he says, paraphrasing Marcel Duchamp.



One of Wagenknecht's works in progress

The Serpentine's exhibition by Huyghe (editions from £15,000) was a perfect example of a show in a constant evolutionary process. Huyghe's practice has long explored ideas of art as an ecosystem – as he puts it, “art that interacts with external elements that have an unknown or unpredictable effect on the work as it continues to exist”. His aim is “to remove or distance the self from intentionality, or any control of the appearance of things”, and his work involves various elements of the world around him, to “give unpredictability, indifference and contingency a place”. In *Umwelt* at the Serpentine, Huyghe was interested in how AI was “another dynamic protagonist that could operate, react and adapt in a larger complex system”. His multifaceted project, involving screens, sensors – and flies – saw viewers watching as computers tried to decode the human process of understanding. In other words, they were trying to decipher the AI, while the AI was trying to decipher them.

The Serpentine is not the only institution to give a significant platform to AI artworks. The [V&A](#) had an Artificially Intelligent display last year, and MoMA in New York held a Research & Development salon called *AI – Artificial Imperfection*. The highlight of *Life Rewired*, the 2019 art programme at London's Barbican Centre, is an exhibition entitled *AI: More Than Human*.

Meanwhile, gallerist [Pilar Corrias](#) – who represents Philippe Parreno, one of France's most respected artists, who also works with AI, as well as Ian Cheng (both price on request) – talks of the collector market for screen-based AI work as “a bit like selling a video: the physical object is often a hard drive and certificate of authenticity. Like video, the medium needs to be updated over time. But in terms of the hardware, it is not that complicated.” In Cheng's case, pieces aren't sold in editions, as they are unique – each one uses slightly different programming – so they are called a series. Works are displayed on LED screens, monitors and projectors, in the same way as video. For Corrias, some of the challenge, and pleasure, of selling the work is setting it in the context of the bigger art-world picture. “I don't need to explain to a collector the importance of [Warhol](#). But when you're showing a medium for the first time, it's important to help people understand it,” she says.

AI art is attracting a new genre of collector – often from the tech industries. Last summer, contemporary gallery Nature Morte in New Delhi put on the exhibition *Gradient Descent*, featuring screen and print works created by artificial intelligence “in collaboration” with seven international artists, which is soon to travel to Bangalore. Those who have bought works are a mix of long-standing art enthusiasts and new collectors from the tech world “who are starting to appreciate how their world intersects with art”, says co-curator Karthik Kalyanaraman. The show includes work by British artist Anna Ridler (from \$300 for elements of training sets used to teach

algorithms and \$2,000 for video pieces), who creates her own handpainted data sets to feed the AI. In *Mosaic Virus* (which will be exhibited at the Barbican), Ridler uses AI to make a screen-based work linking today's preoccupation with cryptocurrencies with the tulip mania of the 1630s. Here the GAN generates an array of tulip images, the vibrancy of whose petal stripes (a feature highly desired in the 17th century, and which affected the [flowers'](#) price) is controlled by the fluctuating value of bitcoin. "I want to draw together ideas around capitalism, value and the tangible and intangible nature of speculation from two very different yet surprisingly similar moments in history," says Ridler.

Composer Hampus Lindwall is a vocal advocate for collecting contemporary digital art, including AI artworks. "I collect them because I like the content, not because of their technique," says Lindwall, who owns online digital animation works by Evan Roth, moving flash artworks by Petra Cortright and web-based works by JODI, which he displays for free on the internet, as well as on screens in his home. When it comes to the often-concerning topic of conservation and technological advances, he is unperturbed. "One can easily hire help from digital-art conservation specialists," he says, namechecking Small Data Industries, founded by Ben Fino-Radin.

But what of AI artworks that begin to have a life of their own? During Cheng's Serpentine show last spring, his screen-based installation BOB (an animated AI mind) grew, moved and interacted with viewers as it desired. Sometimes it chose not to engage at all, or began to edge towards decisions beyond the parameters set by the artist. As Cheng says of AI artwork's trajectory: "It's going to get much weirder – and more interesting."