

The Work of Art in the Age of Artificial Intelligence

Words Caroline Christie
Illustration Sebastian König

AI has become so ubiquitous that it's even shaking up the art world, with auction houses selling AI-generated work for record sums. Creativity could be in crisis.

When the hammer finally went down, *Edmond de Belamy*, from *La Famille de Belamy* sold for \$432,500, nearly 45 times its original estimate. The first AI-generated artwork ever auctioned at Christie's — signed with the mathematical formula that helped create it — signalled a new era of creativity, in which AI and art could blur the boundaries of authorship in bewildering new ways.



After the sale made headlines around the world, grievances over who should be credited, and potentially compensated for the work, began to emerge. Simultaneously, it raised questions about how we define and protect the very essence of creativity, and whether the current legal framework can keep up with innovation.

Though AI-generated, *Edmond de Belamy* was conceived by Hugo Caselles-Dupré, Pierre Fautrel, and Gauthier Vernier — a trio of 25-year-old artists who make up Parisian collective Obvious. Using a type of machine learning called a Generative Adversarial Network (GAN), available online via an open source licence, Obvious used the algorithm as the basis for their idea, training and developing it until it produced the results they were looking for.

The GAN itself was not their own, but the creation of a 19-year-old developer working in a Stanford research lab. Robbie Barrat has produced a wealth of neural networks

designed to crudely imitate all facets of human creativity. Currently on Barrat's Github are "rapping-neural-networks" that can write lyrics trained on Kanye West's entire discography, and a selection of plant-art algorithms that "help you make generative art using the electrical activity in plants". Barrat says he did the bulk of the heavy lifting on the GAN behind *Edmond de Belamy* and, therefore, should have been given greater credit for the final work. While Obvious did acknowledge him in a blog post that accompanied the artwork — and in the footnotes of the code itself — they claim sole authorship as the minds that instructed the AI to generate *Edmond de Belamy*.

Machines are fantastic linear thinkers; they follow patterns fastidiously, and even the simplest of them can process mathematical formulae that only the most exceptional human brain could conceive. They are not creative. Forced to abide by sequential rules, they solve problems by crunching numbers and following patterns. But the GAN uses two algorithms working in opposition, to break out of this linear mode, and allow for machine-made randomness. Rudimentary computer art would follow a prescriptive set of parameters that tended to churn out generic images, but by using a system that facilitates chance, AI is capable of producing unpredictable outcomes.



Of course, the GAN isn't the product, it's only the medium. The GAN used by

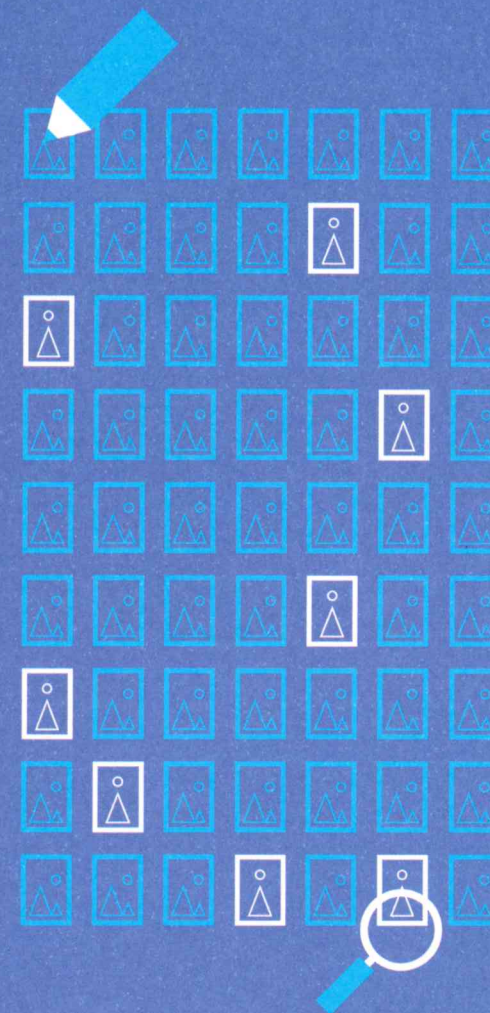
Obvious worked by feeding from a large volume of images and picking the ones it believed to be the most lifelike. It studied 15,000 paintings created between the 14th and 20th centuries, and then processed them using two different functions — a generator and a discriminator. "The Generator makes a new image based on the set," Caselles-Dupré told Christie's. "Then the discriminator tries to spot the difference between a human-made image and one created by the Generator. The aim is to fool the discriminator into thinking that the new images are real-life portraits. Then we have a result."

Unlike natural laws, there are no universal instructions that guide creativity. That said, there is consensus that creative work has to have an author — the same principle that underpins the concept of copyright. A given right that isn't granted by a court, copyright goes straight into action as soon as an idea is made real. It helps authors to maintain ownership over their work, meaning no one else can plagiarise their creativity. It also gives artists the legal right to profit from their creations, intellectually and financially. Depending on the format and jurisdiction, copyright can last a lifetime. Right now, the world of AI and copyright is a legal spider's web, with new and unforeseen cases testing legal boundaries and establishing new precedents.

In order for a physical manifestation of an idea to claim copyright protection, it has to be attributed to a person, or people. In the case of *Edmond de Belamy*, the geographical origin of the artwork is key. ▶

The GAN Explained

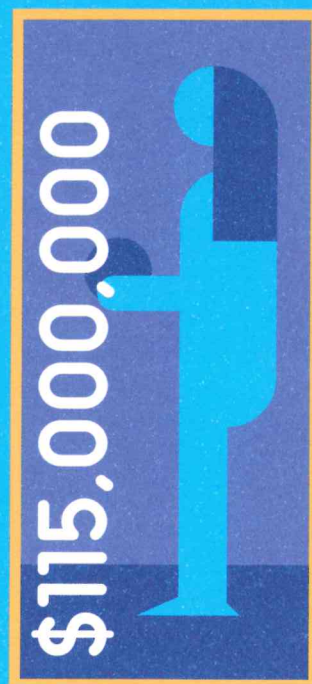
The **Generator** creates a variety of new outcomes using existing paintings as input in an attempt to fool the Discriminator.



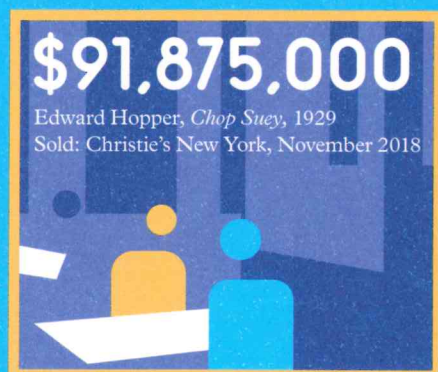
The **Discriminator** evaluates and attempts to determine which of the paintings are original.

The Price of Art in 2018

Edmond de Belamy might seem expensive, but here's how it ranks against the most expensive works of art sold in 2018, all of which were made by humans.



Pablo Picasso, *Fille à la corbeille fleurie*, 1905
Sold: Christie's New York, May 2018



\$432,500

GAN/Obvious Art, *Edmond de Belamy*, 2018
Sold: Christie's New York, October 2018

Source: Artsy

Under French law — to which the artwork is subject, having been made in France — computers cannot claim copyright. “In Europe, there is no case law on this,” says Andres Guadamuz, senior lecturer in Intellectual Property Law at the University of Sussex. “The law doesn’t really specify that a computer-generated work, or work of artificial intelligence will be protected, but there is enough case law to tell us that it probably won’t be. We’re in a situation where the painting at Christie’s isn’t protected.”

If an idea isn’t protected by copyright, it ends up in the public domain, meaning anyone can use it. Take the case of the monkey selfie. When wildlife photographer, David Slater, travelled to Indonesia to follow a group of monkeys in 2011, he was totally oblivious to the mammoth legal case that would ensue. Striving for the perfect shot, he let the monkeys play around with his camera and take pictures of themselves. The British tabloids snapped up the story and Slater’s images went viral. But then Wikipedia decided the image didn’t belong to Slater; the images hadn’t been made by a human and were thus in the public domain.

In 2015, animal rights group Peta (People for the Ethical Treatment of Animals) took the argument one step further. They saw an opportunity to legally demonstrate that animal rights were equal to those of humans, attempting to establish a legal precedent by suing “on behalf” of the monkey — a rare crested macaque, called Naruto, who lives in the Tangkoko Reserve. At the end of the two-year legal battle, it was decided that animals can’t file copyright infringement

suits. The very concept of copyright only applies if creative work can be attributed to a human. To suggest that machines or animals are legally entitled to copyright is to afford them human rights.



In many places around the world, these debates are all still theoretical. “In the US, there is very little case law on this,” Guadamuz says. “The Copyright Office has said that computer-generated works are not protected by copyright. But that’s not the same as a court, so their opinion isn’t set in stone.” Unlike other creative works, when a product is the result of AI the original is the only thing of monetary value. Guadamuz says: “You may be able to sell the original, the actual physical painting, but anyone else in the world will be able to recreate it and copy it and do whatever they want with it.

“Imagine you invest millions in a system that generates music for video games, only to find that the music is not protected by law and can be used without payment by anyone in the world.”

Under current legislation, the creative output of such an AI would be worthless. The economic case for protecting AI-generated artwork is clear.

In the UK, computer-generated works come under the provision of the Copyright, Designs and Patents act of 1988, under which whoever arranged for the works to be created holds the copyright. “The origin ►

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of this is very strange,” says Gaudamuz. “Back in the ‘80s, the people that were drafting the Copyright Act were presented with some computer-generated artworks, and they included this in the act. It was created before anyone thought that there would be anything like artificial intelligence.” These same laws apply in Hong Kong and New Zealand, whose copyright legislation was borrowed from the UK.

Guadamuz fears if we don’t give humans proprietary copyright over work created with AI, we’ll start to see a creative race to the bottom, with companies churning out AI-generated content at lightning speed.

Creative works like background music, background graphics for video games, and simple graphic design will be the domain of AI. Why pay for these creative services when you can use a computer-generated version for free? The only part of the process with monetary value will be the software itself. “That is where I think the money is going to be,” Guadamuz says. “If you are able to create a sophisticated artificial intelligence software that can produce works of art and music, that is probably what people are actually going to be selling. [The work would be] very basic, very derivative, but for something like a YouTube channel that doesn’t want to pay royalties, it could be quite useful.” The advertising revenue alone on such an endeavour could be huge.

The simplest way to ensure a future in which the copyright of AI-generated artwork is protected, would be to roll out the UK’s accidentally prescient legislation worldwide and protect “the person by whom the arrangements necessary for the creation of the work are undertaken”. To do so would ensure that the ambiguity surrounding a case like *Edmond de Belamy* would evaporate, along with Barrat’s claims to compensation. Alternative approaches would lead only to ambiguity and endless questions about whether AI is a medium, or a consciousness with rights of its own. Under present circumstances, this hardly seems like a conversation worth having, but, perhaps in the coming decades, it will become a debate that merits urgent discussion. ●

What now?



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