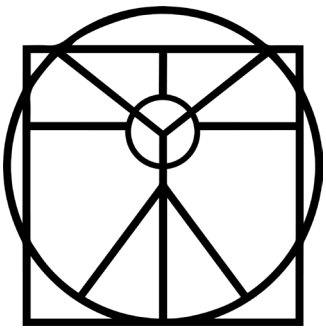
OBVIOUS

ARTIFICIAL INTELLIGENCE FOR ART



WWW.OBVIOUS-ART.COM

This document describes our artistic approach,
our history and our ambition.

Content

MANIFESTO

We at Obvious wish to explore, use and share the different ways machine learning algorithms can empower our natural reativity. The notion of creativity is extremely hard to encapsulate, at it seems to be a process implying a number of factors that are not yet properly defined. Through the replication of human behaviour in a creative context, we see algorithms as a fascinating tool to dig into and better understand the different forces at stake in the process of creating something new, unique and innovative. We witnessed examples of algorithms helping humans improving their creativity within framed scenarios such as in a chess game or a GO game.

We wish to demonstrate that algorithms help us complete our understanding of how we function as humans, and push us to outsmart our current level of creativity.

Through the creation of comprehensible artworks and by collaborating with the major actors that shape our society, our art collective wishes to shred some light on the emerging tools available. We believe that a new generation of creators will rise, one that will know how to build and manage algorithms that will help in an innovative process. We also want to promote a new level of collaboration between an artist and his tool, where the hands of the artist and the one of the machine are joined in the search of a new type of aesthetic and a deeper conceptual framework.

By staying up to date with the latest research and finding artistic applications to the tools being discovered, we bring knowledge and future perspective to the world, by reducing the gap between research and applications.

Science and art have always been complementary. We can observe examples of this symbiosis everywhere from the works on geometry that helped artists building perspective in their work and the chemical creation of new types of pigments that allowed declining colors while keeping their intensity, to the creation of the camera that multiplied the facility of access to visual creation. We encourage this dynamic by exploring different types of art through the angle of a set of algorithms, and help reconcile the old and the new by and reducing the differences in perspectives of apprehension of the issue.

We wish to contribute to the debate regarding the scope and nature of art, and allow once again the definition of art to grow and evolve with the era it evolves in. We believe that this can be done both by proposing new example of creations, and working directly on redefining the creation process as a whole, thus providing new insights on the question of the place the artist takes in it.

Technology has always been at the service of human ambitions as the best tool to push our limits. Mostly, it is the way humans use it that will shape the future of our society. This is why Obvious focuses on accompanying the emergence of benevolent and harmless ideas, by promoting alternative uses for it, and unveiling its true creative potential.

“Computer are useless. They can only give answers.”

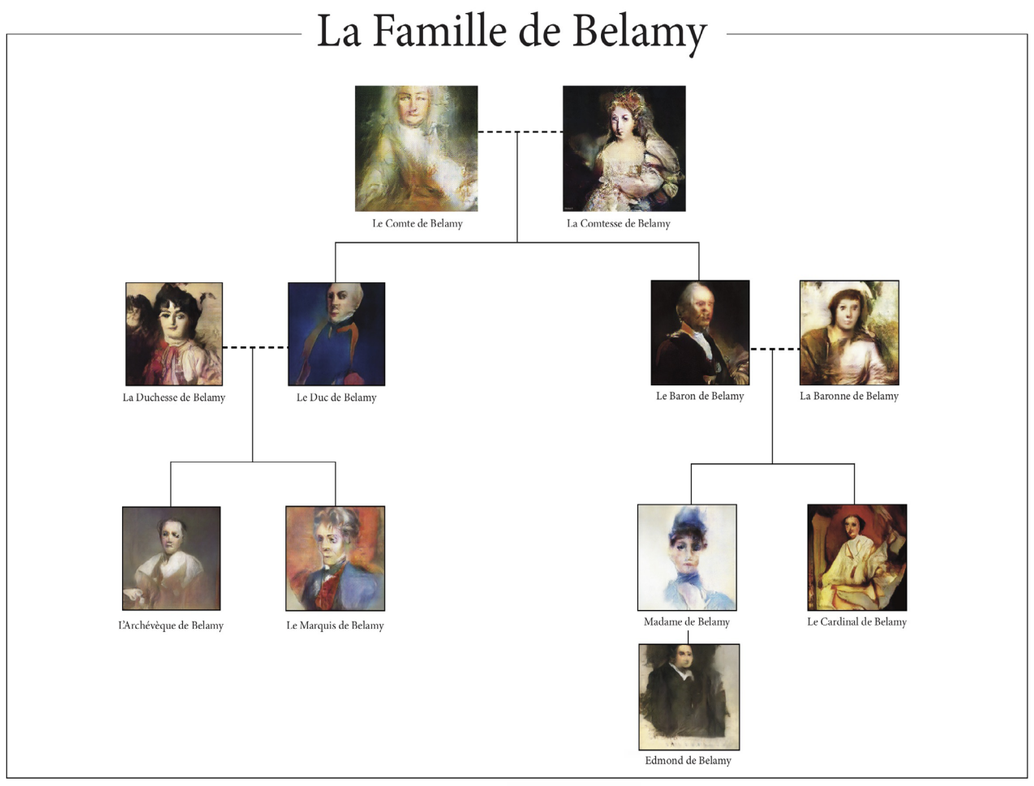
Well Picasso (1881 - 1973)*, it’s a disagreement*

La Famille de Belamy

2018

OUR FIRST COLLECTION

Our story starts with the creation of the Belamy Family, a series of eleven artworks. Behind their classical traits and although everything in these portraits calls to what we know of classical european art, each portrait was created using artificial intelligence.



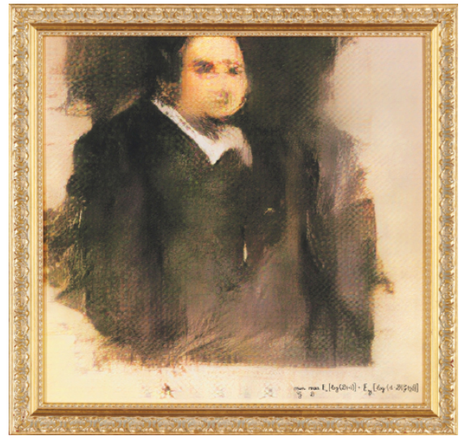
The Belamy family tree, displaying centuries of art history, as seen from the standpoint of an artificial intelligence

Eleven portraits, representing aristocrats from a wide range of periods of history, with a common visual signature: a somehow blurry visual, with tracks of expanded pixels, surrounded by a golden frame, with a mathematical formula as a signature. The Belamy family ("Bel Ami" as a reference to Ian Goodfellow, the inventor of GANs) is a collection of portraits, which has the particularity of having been created using Generative Adversarial Networks.

The different portraits are linked by a family tree, which has different meanings depending on the way you observe it. Its roots display the genesis of artificial intelligence in our society. From a vertical perspective, it depicts the different periods of art history, all represented in the dataset of 15.000 images of portraits painted by humans, used as input. From a horizontal perspective, each side of the family represents a future that is being or will be made possible by the development of artificial intelligence in our society.

This first collection has been received with a lot of enthusiasm in the art world. After struggling to reach the right audience, it went through the auction house Christie's, which gave it a lot of exposure.

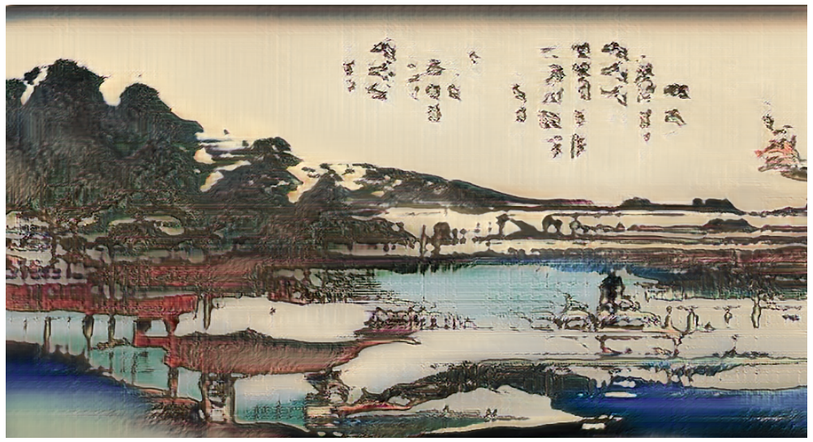
Christie's was willing to experiment the response of the art market to a whole new type of art, with a new conceptual dimension, and chose to put Edmond de Belamy to the test. The artwork was estimated at 7-10.000 dollars, and was sold for an astonishing 432.500 dollars.



Left : Our pieces have been producted by l'Atelier Clot in Paris. Right : "Edmond de Belamy" during the 25th of October's auction.

Creating Art with AI

A PHILOSOPHICAL ESSAY ABOUT THE
CONSEQUENCES OF CREATING ART WITH ALGORITHMS



Defining Artificial Intelligence

When we talk about AI, it is important to properly state the stage. Let's make it simple: AI is the manufacture of intelligent systems.

Not happy with that answer ? Well, the point is, intelligence itself is tricky to define properly. For example, take a task that would consist in recognizing a cat from a dog. It would require to identify which feature is common to each subject, build general rules out of examples, and manage to compare. Now, take a task that would require to solve a deeply theoretical math problem that applies to make reality better in the long run. Making the choice to concentrate on this problem instead of feeding your reward circuit would require another level of intelligence. In the end, AI aims at building systems that answer all these problems.

A good way to define AI could be to state what we are currently able to do. Today, using machine learning, we manage to replicate simple human tasks with algorithms (a set of instructions based on statistical methods and data). We use these algorithms either to optimize (by performing complex computations), or to scale (with chatbots for example), even though those two notions are often linked one to another. The algorithms can learn by identifying common features in the data, and are faster than humans at analyzing it. We can call this Augmented Intelligence. Quite far from the AI that we like to fantasize, and the idea that resonate when startups, governments and companies flood us with a constant promotion of innovation.

Art: a perfect land of experiments

We decided to explore these interrogations through art. Why ? Art is a perfect medium that allows to experiment with the possibilities of an AI and better understand how it all works. Here are four art features we identified as being helpful in our research.
- Art is tangible : it offers some concrete results when experimenting.
- It is accessible : most people have an affinity with some kind of art.
- Art is interpretable : it offers another way to experiment, and leads to debates that are at least as interesting as the answers you can get the purely scientific field
- Art is free, and it cannot be restrained by our own creativity when experiencing with it.

Therefore, art seemed like the perfect way to experiment with creativity as expressed by artificial intelligence.

When talking about art, we consider all types of applications that we start to see appearing around us. Music made by a collaboration between human and machines, poems, scripts, lyrics, trailers, and images made by algorithms. All these projects have in common a drastic change in at least part of the creativity process. Each one of them is different in the level of human intervention it involves. We can say that once the whole process will have been automated, we will have created a machine that is capable of being creative, in the same way a human is.

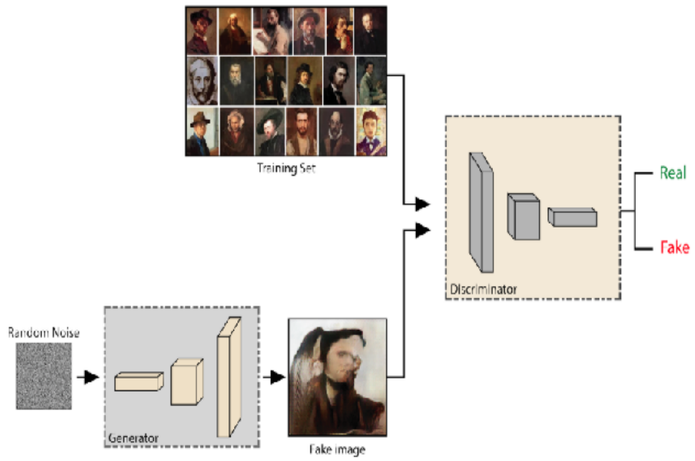
A word about GANs

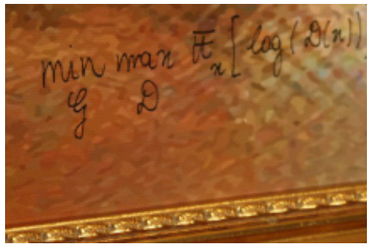
GAN IS THE TECHNOLOGY WE WORK WITH
AND THIS IS HOW IT WORKS

A word about Generative Adversarial Networks (GANs)

Recent advances in deep learning have made it possible to extract high-level features from raw sensory data, leading to breakthroughs in computer vision and speech recognition. These methods uses neural network architectures which are "bio-inspired" algorithms that can automatically learn those features. Our work takes advantage of deep learning models, especially algorithms called Generative Adversarial Networks.

Generative Adversarial Networks (GANs) are generative models created in 2014 by Ian Goodfellow, a researcher in Machine Learning. They put two algorithms in competition one with another to perform the training: the generator, and the discriminator. The generator will create new images by mimicking characteristics of images from the training dataset, and try to fool a discriminator into thinking those images are "real". The generator trains until no difference can be made by the discriminator.





A simple metaphor to understand how GANs work :

Take an art student. His professor asks him to paint a Picasso. The student doesn't know what a Picasso looks like. So he will start painting, in order to see which direction to go. Every painting he makes is judged by the professor.

With time, the student gets better and better at painting Picassos, and at the end of the process, the professor can't tell the difference between a real Picasso and one that has been produced by the student. At this point, the student is capable of creating new examples of Picasso paintings, at least at the eyes of the professor.

Our artworks are signed with the mathematical formula that governs the relationship between the algorithms. It provides a comprehension key to the viewer, for him to understand that there might be something curious to expect from this artwork. As you can expect, the process of creating art with algorithms can't not be summed up to simply pressing a button. There are different steps that we commit to perform each time we take a new subject in our hands

Our Creative Process

FOLLOW OUR PATH IN
THE PROCESS OF CREATING A SERIES

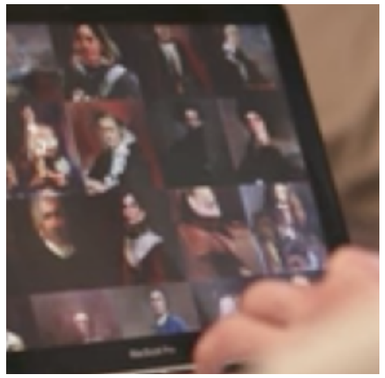
As you can expect, the process of creating art with algorithms can't not be summed up to simply pressing a button. There are different steps that we commit to perform each time we take a new subject in our hands

1 Selecting the subject

First, we choose a subject. We cannot list all the factors that lead us to a subject for two main reasons: there are so many of them, and we are not aware of all of them. We tend to focus on something that speaks to us, that is iconic in our society, and more importantly, that we like. We start gathering information on the subject on the internet, in books, by going to exhibitions and talking to the world greatest experts. Once we feel that we know enough on the subject, we can start looking for the algorithm's food: data.

2 Curating the data

We start constituting a database of images, that we can find by several means. Some images are available online and free of right, and others are obtained by bounding partnerships with different entities. When selecting the data, we keep in mind the final result that we wish to get to, as well as the limitations the algorithm has, in terms of data diversity and quantity. As a matter of fact, the algorithm won't be able to create anything resemblant to the original data if the images differ too much one from another, or if there aren't enough examples for the algorithms to understand what to create.



3 Building the algorithm

We then select which technology we want to work with, and we start building it. Few algorithms are ever written from scratch, so it consists more of using existing parts of code, and compiling them together in order to make it serve our purpose in the best way possible. Once the algorithm is set, we start playing with the dataset and the algorithm parameters in order to get to an optimal result. This part of the process can be very time consuming, as it consists in a series of trials and errors, and as each training of the algorithm can take a few days. We repeat this process until we get to the result we are all happy with, and the visual we are proud to display to the world.

4 Selecting the output

Once the algorithm is optimally trained on the right dataset, it is able to create a large number of images, ranging from figurative to abstract, and reflecting the diversity of the data that served as input. Within the output, we select the images that we like the most, and that best serve our message.

5 Selecting the medium

We believe that an artwork is more that a mere file on a computer. By making the artwork physical, we allow a new level of connection between the artwork and the viewer. Each subject must be treated on a dedicated medium, once again with the goal of serving our message. For example, we chose to print the Belamys on canvas, and to display them in a golden wooden frame, in order to strike the collective imagery, and allow each and everyone to relate to the type of artworks that we refer to.

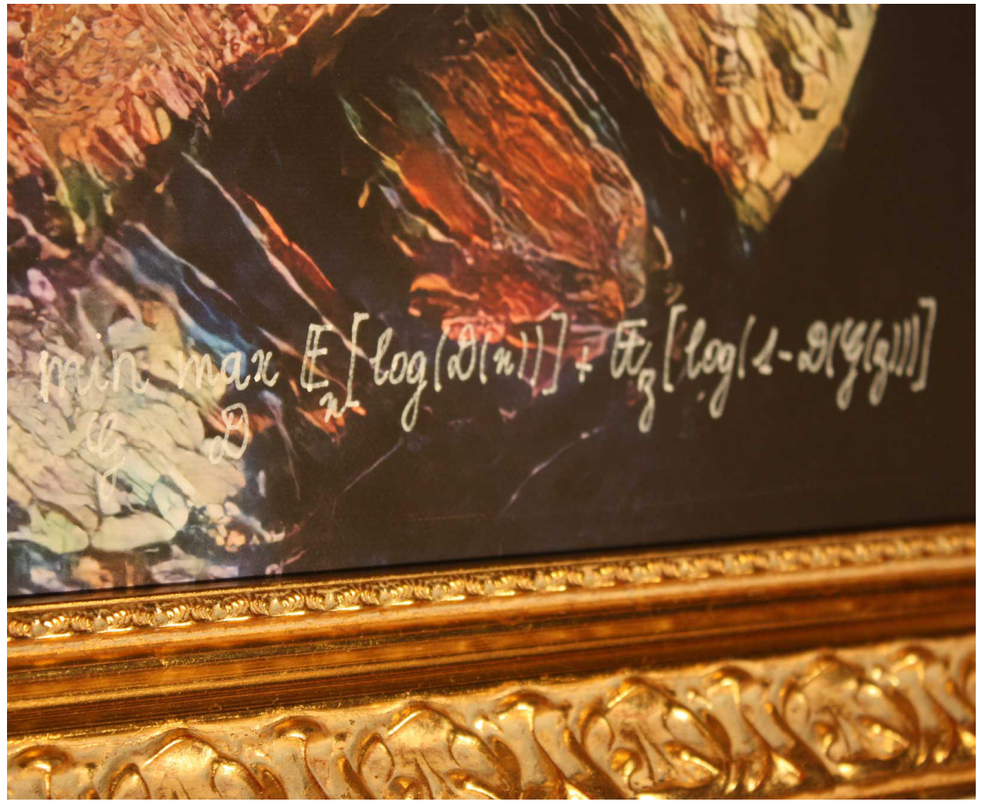
A New Era of Creativity

NEW WAYS TO ADDRESS NEW CHALLENGES"

We started as three humans, limited by our creativity and our biased vision of the world surrounding us. We expanded our mind using algorithms by developing a tool providing us with an algorithmic view of our world. We want to share this vision, and to allow science into the art world once again.

The coming years will be challenging. We count on technology to help us overcome these challenges, and we believe it starts with expanding our creativity and destroying our current mental barriers. Welcome to the new world.

1 + 1 = 3
1 + 1 + 1 = ∞



All our artworks are signed with the mathematical formula of GANs in order to give hints to the viewer on the artistic processus used to create them.

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