DeepArt, the computer that paints your portrait

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Credit: EPFL / Alain Herzog

What would you say to having your selfie turned into a Van Gogh or Matisse painting? That's exactly what you can do with DeepArt, an algorithm that can generate a digital painting from any photo. It is now available for the first time on a platform designed at EPFL.

Machines are no longer satisfied with beating up on chess and Go

champions. They are now displaying an artistic bent and are capable of producing paintings that would be the envy of many artists. And it has nothing to do with photo filters: the computer starts with a clean canvas – or rather a white screen. The DeepArt algorithm was developed at the University of Tübingen in Germany and is now available for public use on a platform designed by Lukasz Kidzinski, an EPFL researcher at the CHILI Lab.

The process is easy enough to explain, but it draws on the latest advances in deep learning, which refers to automatic learning algorithms that make use of high-level abstractions. Those algorithms are used for such things as face recognition and computer vision. With DeepArt, the user provides the computer with a photo and asks it to produce a painting according to a particular style or artist. "The algorithm analyzes the image and extracts the key features, such as a face or an object," said Kidzinski. The program then paints an image by repeatedly comparing the initial features with the painting it is meant to emulate. After around 10 minutes of calculations, the painting is ready: the program delivers a unique, original work of art.

Now, anyone can submit a picture and experience the power of DeepArt thanks to the website developed at EPFL in collaboration with the researchers at the University of Tübingen. Users will then see for themselves if the machine is as talented as a human being. The answer seems to be yes, according to the results of a questionnaire given to visitors to the site, who had to try to tell the difference between a painting by a true master and one by the machine. The result? It was impossible to tell the difference, as people's responses were the same as if they had simply chosen at random.

Will computers soon render the artist's touch obsolete? No risk of that, according to the researcher. "DeepArt is not a threat to art, quite the opposite: it will surely lead to new forms of artistic expression." The

project could also be of real interest to art historians, in helping them restore damaged works, for example. But other applications can be expected to arise in the future. "Developments take place so fast in the areas of deep learning and neural networks that it is impossible to predict what we will be able to do in two years," said Lukasz Kidzinski. "Amazing possibilities are popping up in all fields."

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More information: deepart.io/

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