AiA Art News-service

Art-ificial intelligence can spot a forged painting from just one brush stroke

Artificial Intelligence
A new system created by Rutgers University researchers can tell a real Picasso from a fake one

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I'm neither rich nor sophisticated enough to be involved in art world, but I've watched enough heist movies to understand how easy it is to forge a Rembrandt.

When you consider that a Da Vinci piece which sold for almost half a billion dollars last Friday has been thrown into disrepute and caused a frenzy amongst art connoisseurs for allegedly being a fake, maybe it's time historians use something better than expensive infrared spectroscopy and the naked eye to spot the imposters. Say, AI?

Researchers from Rutgers University and the Atelier for Restoration Research of Paintings in the Netherlands have published a [new paper](#) which highlights how their AI system is able detect an artist's work by a single brush stroke. Developing a recurrent neural network (RNN), the AI was able to learn what brush strokes and features correlated to each specific artist. The system broke down line drawings from famous artists like Picasso and Matisse into 80,000 brush strokes. The machine-learning algorithm was then taught to look for specific line strokes and to identify the curves, waves and weight of the lines which reveal how hard the artist was pushing on the canvas with their paintbrush.

When the researchers combined the AI with the RNN, they were able to identify a Picasso or Matisse 80% of the time. When the system looked at specially-commissioned drawings by artists that had been composed in the same style as one of the artists, the system identified the forgery 100% of the time, by looking at just one stroke.

"The experiment shows that the proposed methodology can classify individual strokes with accuracy 70%-90% and aggregate over drawings with accuracy above 80%," the study reads. "With accuracy 100% for detecting fakes in most settings," it seems almost better than the naked eye.

However, there is a caveat. As this system uses lines as the basis for identification, it will not be able to identify any paintings where brush strokes have faded out or the paintings have aged.

The researchers plan to conduct further tests using 19th century and impressionist artwork, where brush strokes are historically the most clear.