Artificial creativity or controlled randomness?

Potential and limitation of machine learning technology
in the creative industry

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Introduction

How humans collaborate with AI in Painting and Music

What are AI and creativity**?**

Human creativity vs. artificial creativity

Conclusion

How humans collaborate with AI in Painting and Music

Original

+ grass

+ tree

How humans collaborate with AI in Painting and Music
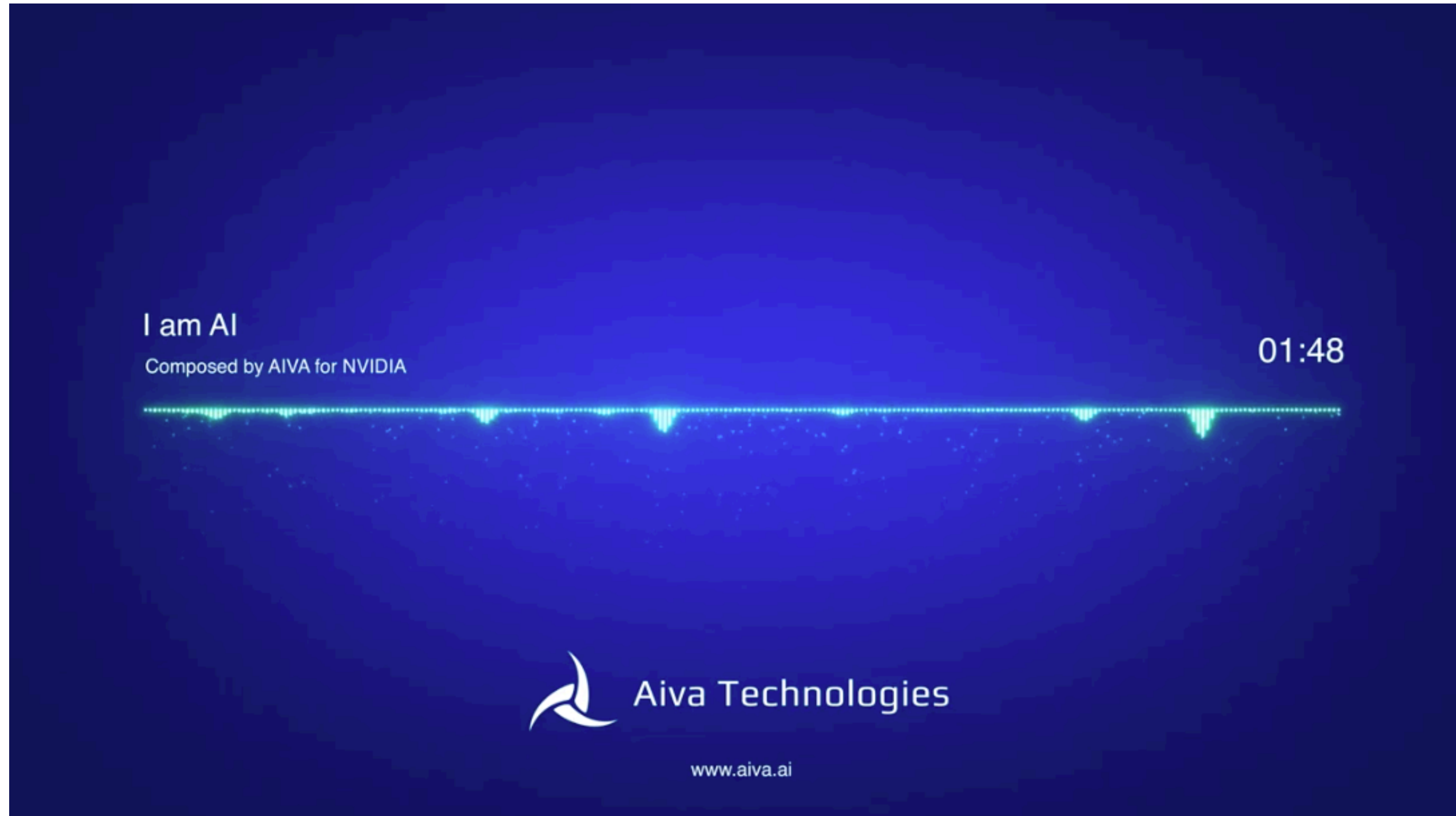

Original   Turner

Gogh   Munch

(Source: A Neural Algorithm of Artistic Style, CVPR 2015)
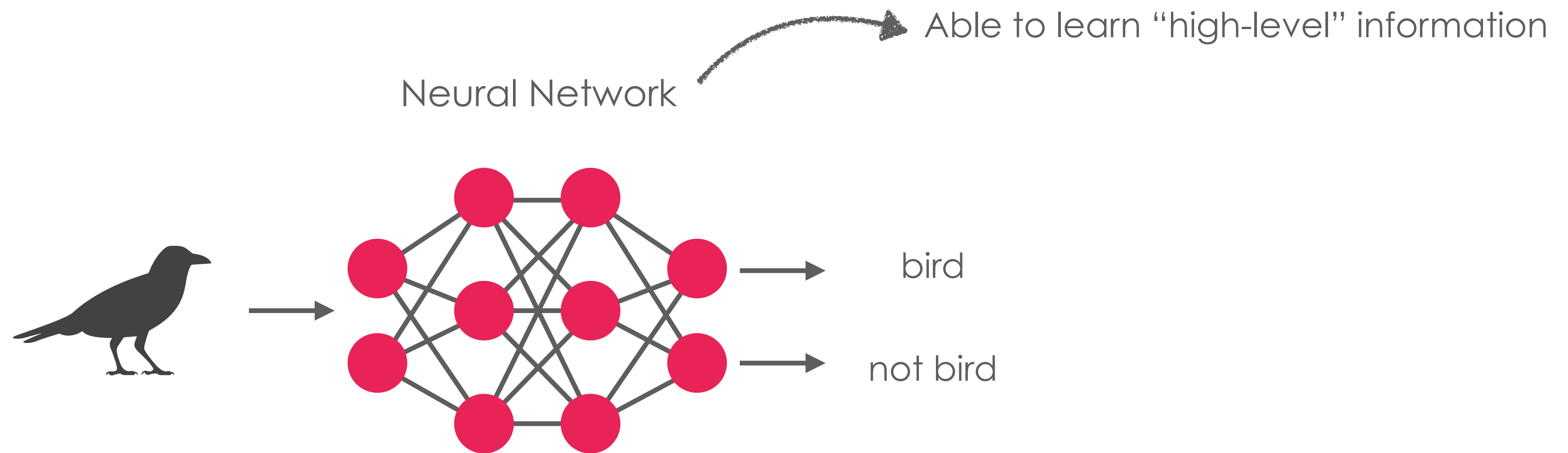
How humans collaborate with AI in Painting and Music

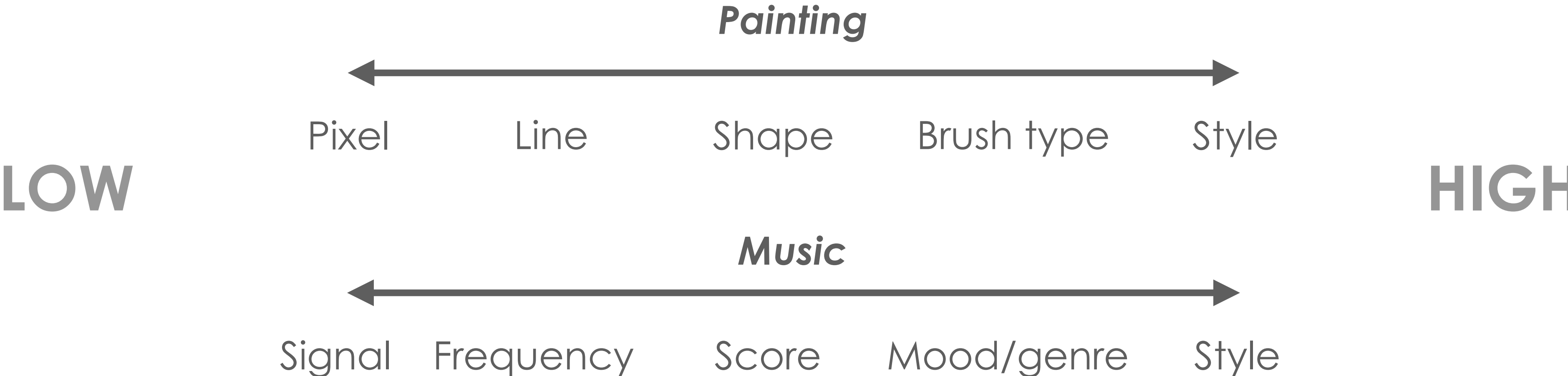**What is AI?**

Intelligence of machines, not humans and animals.

Recently emerged again mostly due to deep learning.

Deep learning can learn high-level information

Able to learn "high-level" information

Neural Network

bird

not bird

Deep learning can learn high-level information

LOW

HIGH

Painting

Pixel   Line   Shape   Brush type   Style

Music

Signal   Frequency   Score   Mood/genre   Style

Deep learning learn from the existing results

We need to train the network with artist's work
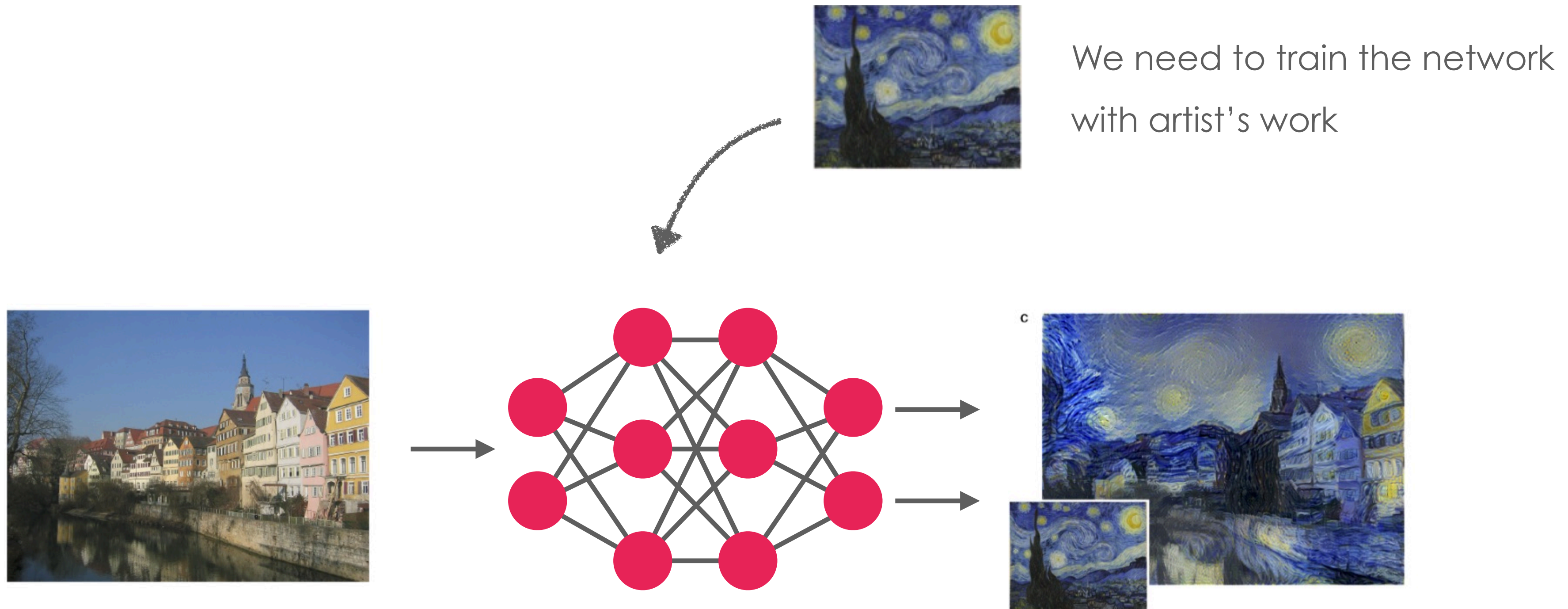
What is creativity?

the use of the imagination or original ideas, especially in the production of an artistic work.

Is my computer as creative as Van Gogh **?**

What is creativity?

Use of the imagination or original ideas,

especially in the production of artistic work.

Human creativity

Artificial creativity

Original ideas

Not totally original ideas, but…

Create something that does not exist

Able to mimic human style (to some extent)

Much faster than human

How about Deepmind's AlphaGo then?

There is a clear measure for "score", also "lose", and "win" which is quantitive, where art is much more qualitative.

Artificial creativity can create new music

- Can be used for background music

- In a moderate quality

- Sound similar to what human made

- Without copyright

- Can give new idea to human

- Not a novel and unique idea, but generated inside of pattern with randomness (e.g. same chord sequence with different melody)

- Rely on serendipity

Conclusion

- Computers can generate artistic things in reasonably high quality, achieved at a level that people can not distinguish from human's work for some of the tasks.

- The results are not completely novel or unique. It can be seen as finding patterns of existing works and generate inside of that pattern with randomness.

- Artificial creativity is different from human's creativity, but it has the potential for replacing many tasks that require "moderate quality" only.

Thank you

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