Captioning Bosch: A Twitter Bot

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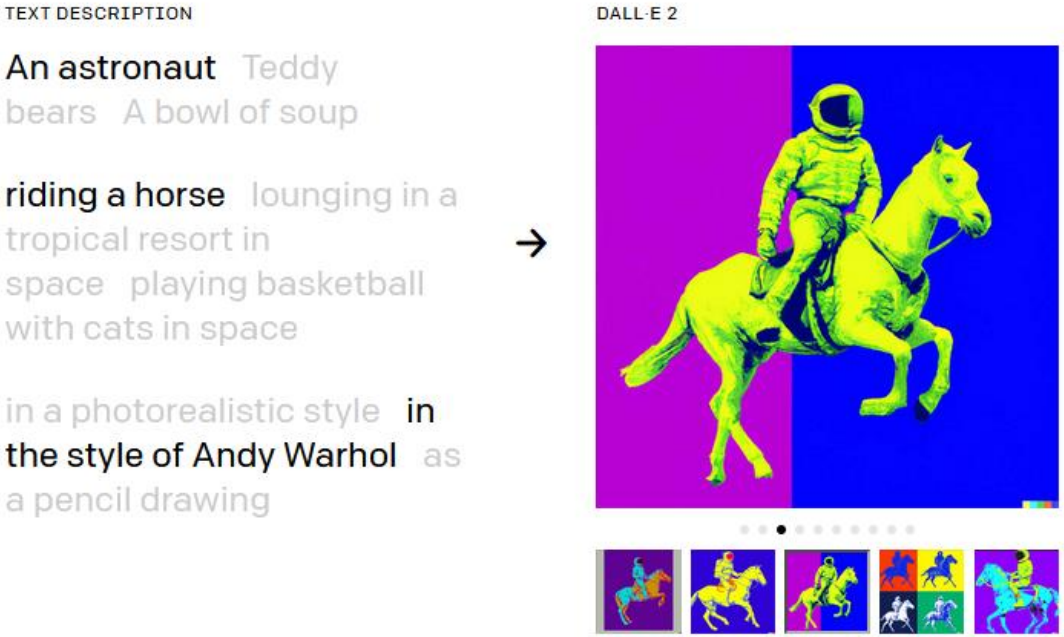
Exhibit Paper

IJCAI-ECAI 2022 Special Track on AI, the Arts and Creativity

FH Salzburg

What Does an AI Know about Art?



Source: OpenAI

Vision Encoder Decoder Model

- Encoder: Vision Transformer (ViT)[1]
- Decoder: GPT-2[2] with cross-attention layers
- Encoder output is used as cross-attention source in the decoder
- Architecture:
  - 12 hidden layers in encoder and decocer
  - Image resolution: 224x224 pixels
  - Vocabulary size: 50,257 tokens

[1] Alexey Dosovitskiy, et al. An Image is Worth 16x16 Words: Transformers for Image Recognition at Scale. In International Conference on Learning Representations. ICLR, 2021.
[2] Alec Radford, et al. Language Models Are Unsupervised Multitask Learners. OpenAI Blog, 1(8):9, 2019.

Training Dataset Examples

MS COCO Caption Dataset[1]:

- 330,000 image-caption pairs
- Photorealistic scenes
- Centered objects
- Objective captions

The man at bat readies to swing at the pitch while the umpire looks on.

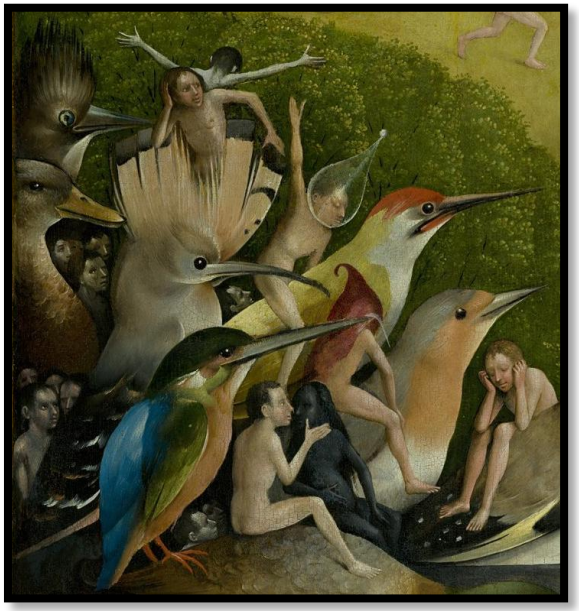
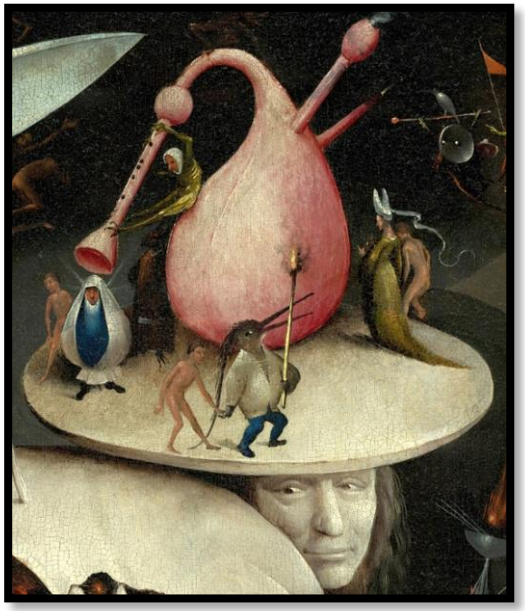
A large bus sitting next to a very tall building.

A horse carrying a large load of hay and two people sitting on it.

Bunk bed with a narrow shelf sitting underneath it.

[1] Xinlei Chen et al. Microsoft COCO Captions: Data Collection and Evaluation Server. arXiv preprint arXiv:1504.00325, 2015.

Captioning Bosch

Source: Wikimedia Commons

Captioning Bosch

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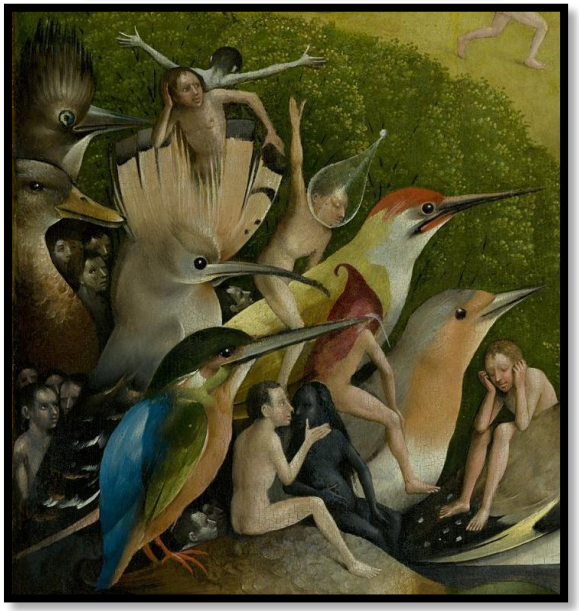

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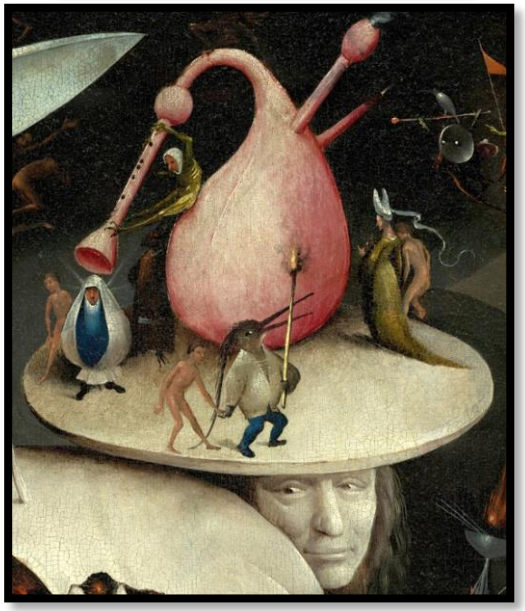
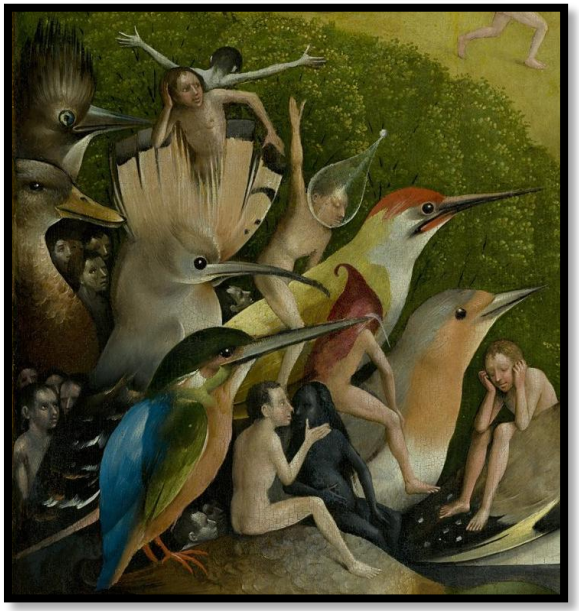


Source: Wikimedia Commons

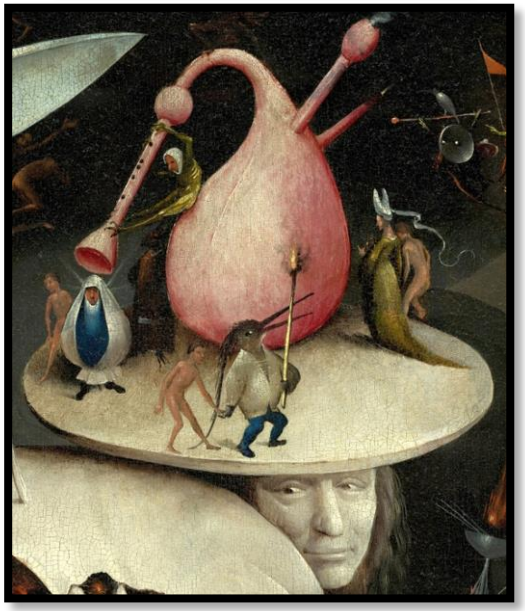
Captioning Bosch

A PAINTING OF A WOMAN AND A MAN IN A FIELD.

A LARGE GROUP OF BIRDS SITTING ON TOP OF EACH OTHER.



A FIGURINE OF AN ANIMAL WITH A HAT ON ITS HEAD.



Source: Wikimedia Commons

Captioning Bosch Bot

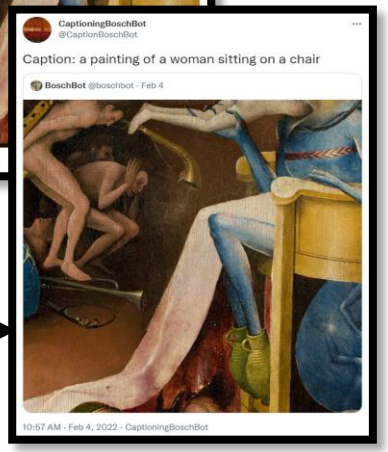
The Garden of Earthly Delights, Hieronymus Bosch, 1490-1510
Source: Wikimedia Commons

1

2

a painting of a woman sitting on a chair

3



Captioning Bosch: A Twitter Bot!

Explore Bosch!

Follow @CaptionBoschBot on Twitter to see more examples of an AI interpreting art.
Like and retweet or leave a comment.

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Bosch's triptych "The Last Judgement" is on display in Vienna! It resides at the *Academy of Fine Arts*.

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