Zainspiruj się sztuczną inteligencją

9 Listopad 2022 - Red Hat Summit Connect Warszawa

AI REV

Red Hat

Presenters:

Mateusz Doroszko - CTO/Partner, AI REV

Jarosław Stakuń - RHCA, Principal Solution Architect, Red Hat

Image generation models

Image generation

CAT in 2017

CAT in 2022

How it works

Image Outpainting

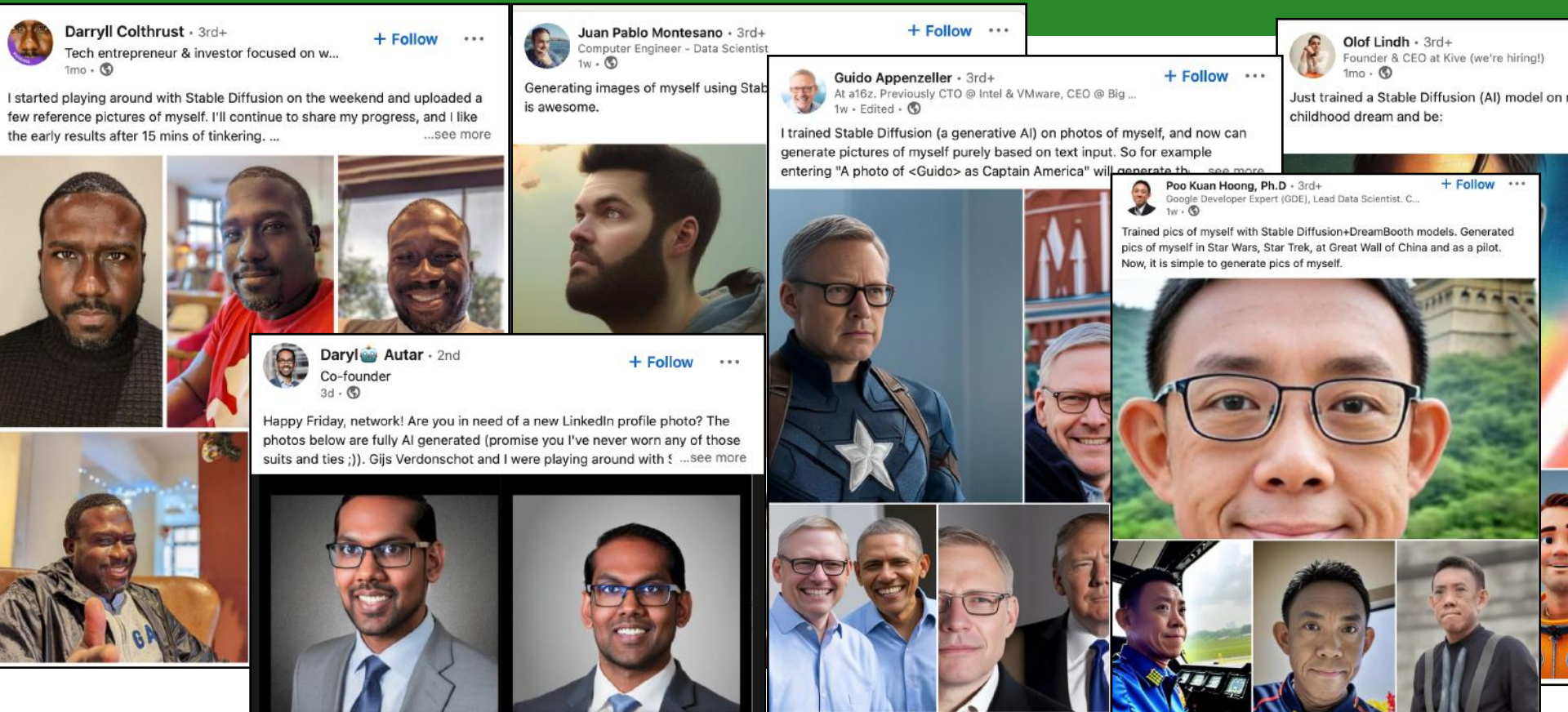
Source:
https://openai.com/blog/dall-e-introducing-outpainting/

Creative usages of image generation

Kitchen Renovation

Source:
https://youtu.be/P1F0-sTyvsQ

New photos for social media?



Searching for images

CLIP model

Input

Output

```
a cat sitting on top of a red kayak in a river
```

Sources:
https://openai.com/blog/clip/
https://replicate.com/methexis-inc/img2prompt

CLIP model

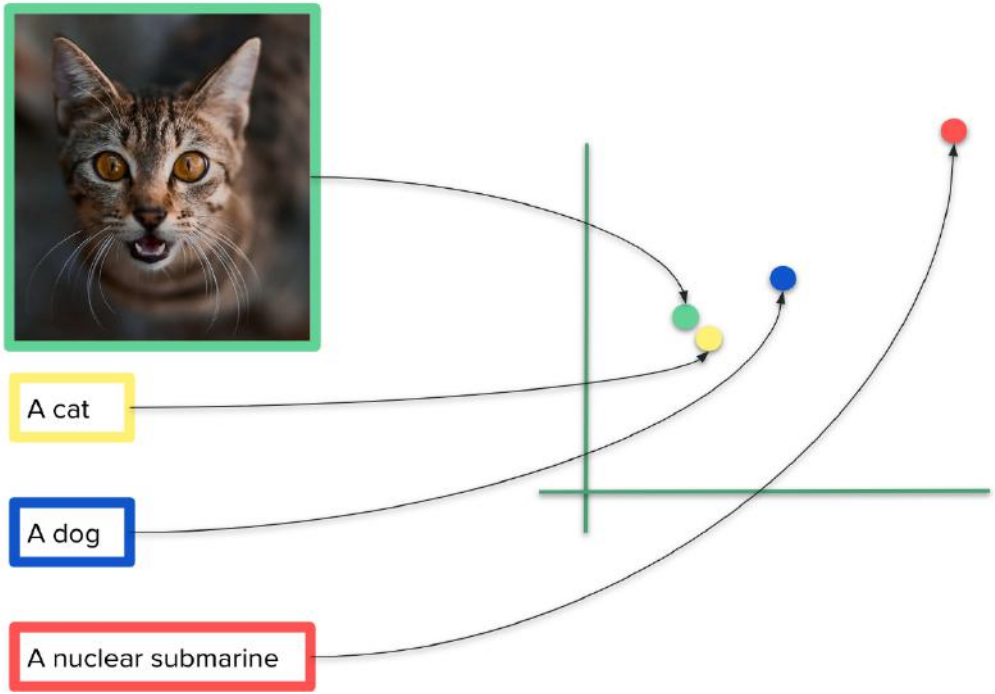
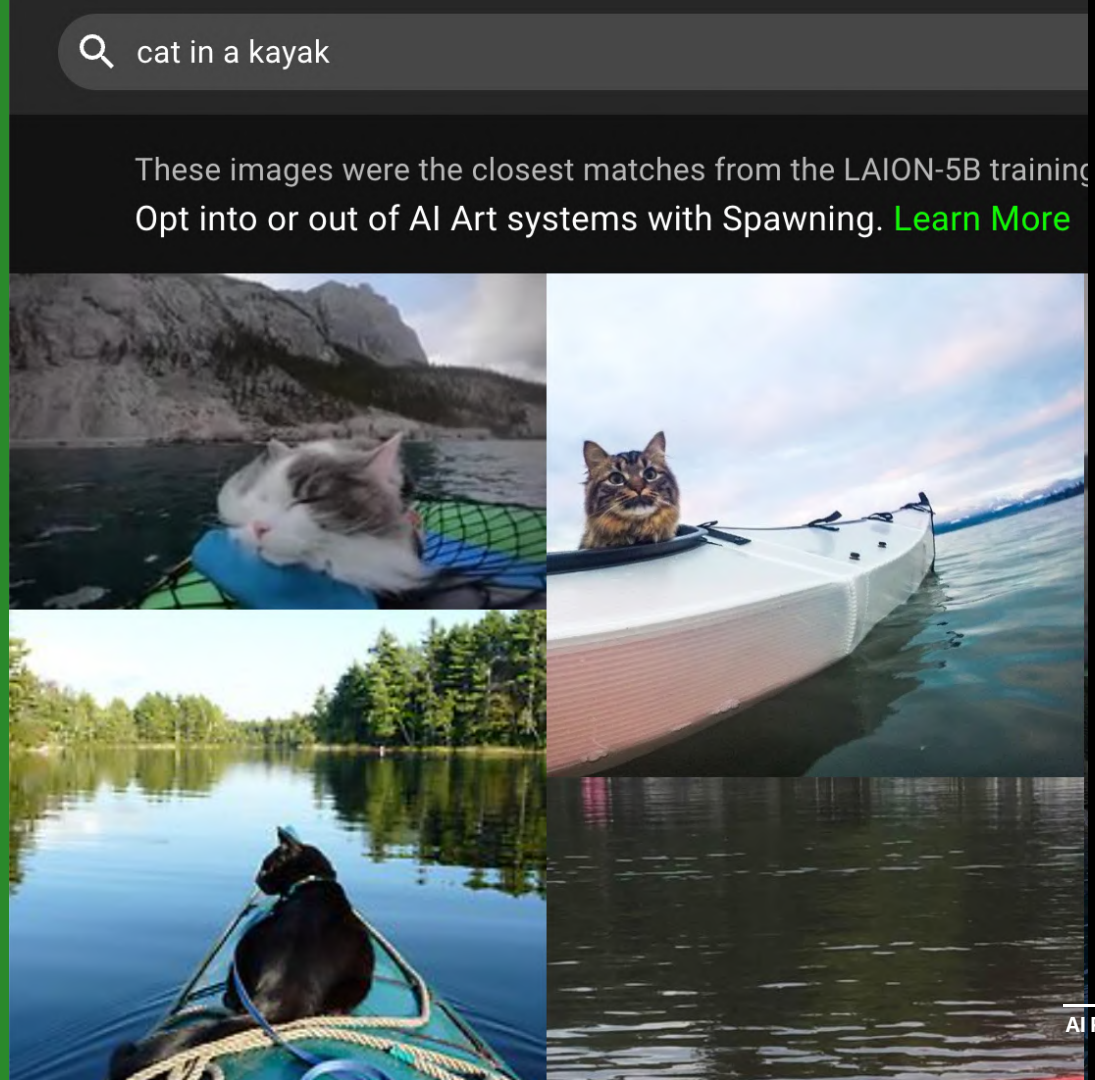


Image search



Source:
https://haveibeentrained.com/

Text models

timeline of textual models in 2021

Source:
https://lifearchitect.ai/timeline/

Get inspired by artificial intelligence

Artificial intelligence is ceasing to be solely a tool that automates simple processes. Solutions based on AI are becoming more and more widespread in various areas of life. Here you can find examples of how artificial intelligence is used in practice:

1. Health care

In the field of health care, AI is used to diagnose diseases and predict their development. For example, IBM Watson can analyze a patient's medical history and make recommendations for treatment. Also, thanks to machine learning algorithms, it becomes possible to develop new drugs faster by analyzing large amounts of data on molecular interactions.

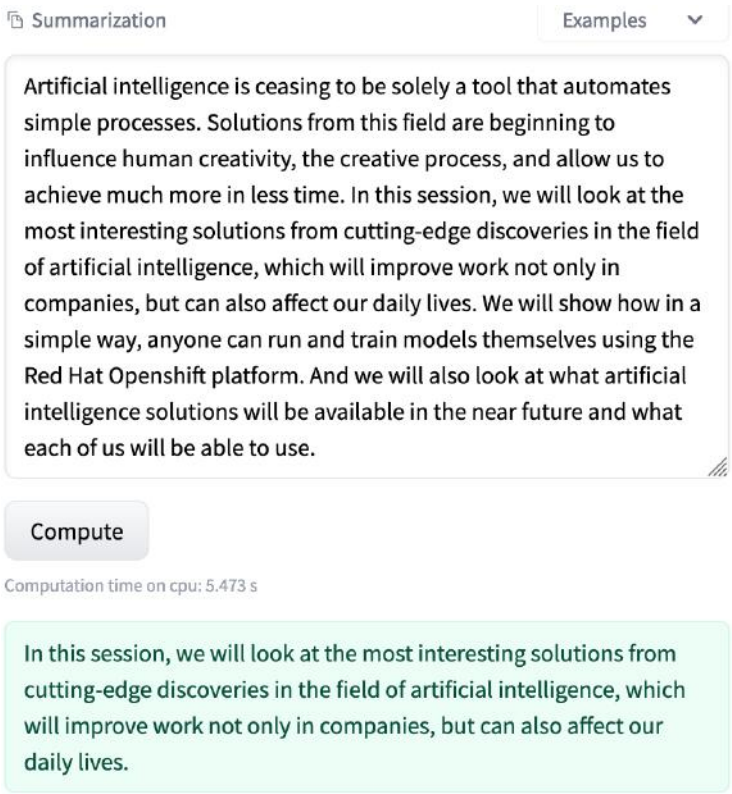
2. Retail business

In retail trade, artificial intelligence is used in various ways: from analyzing customer behavior patterns (for example, using the Amazon Personalize service) to optimizing logistics processes (using robots). In addition, many companies use chatbots as a sales channel – these are virtual assistants that communicate with customers via messengers or websites and help them choose products or place orders online. Thus, businesses save money on human resources while providing high-quality customer service around the clock.

3. Service sector

In the service sector, AI is used to automate various business processes: from customer support (for example, using chatbots) to managing internal company resources (for example, by

GPT-3

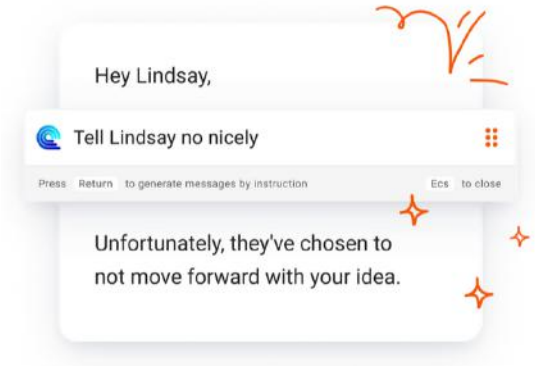


Source:
https://huggingface.co/google/pegasus-xsum

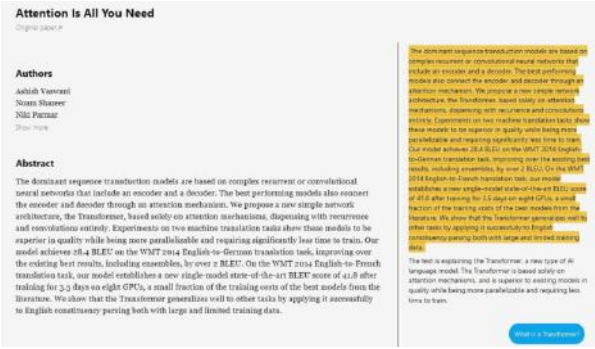
Summarization

Other examples

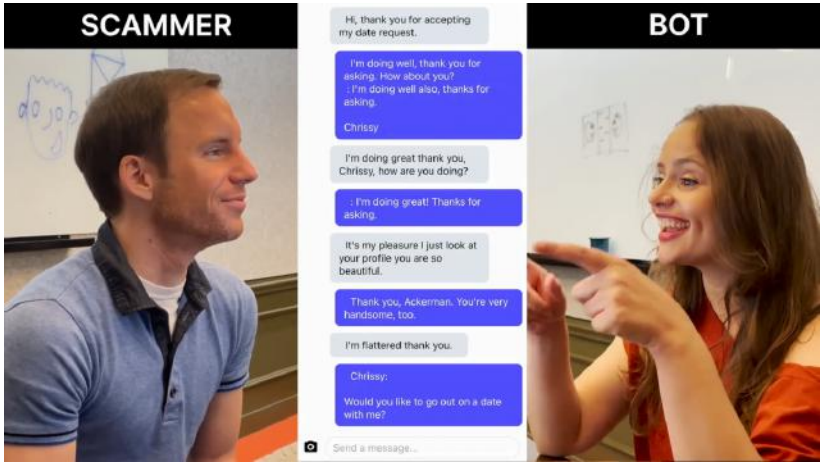
Generate email responses



Explain long and complicated papers



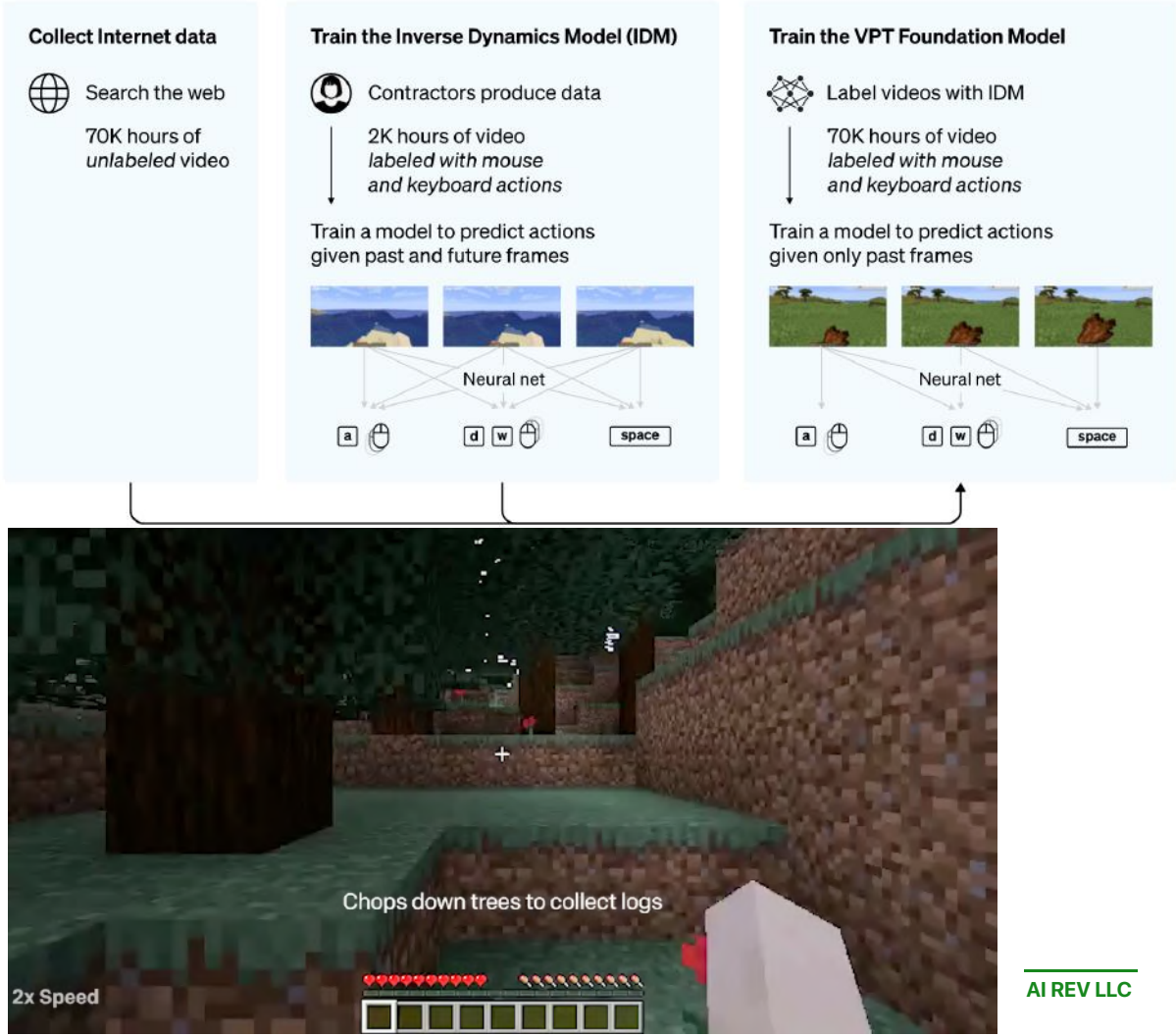
Troll scammers



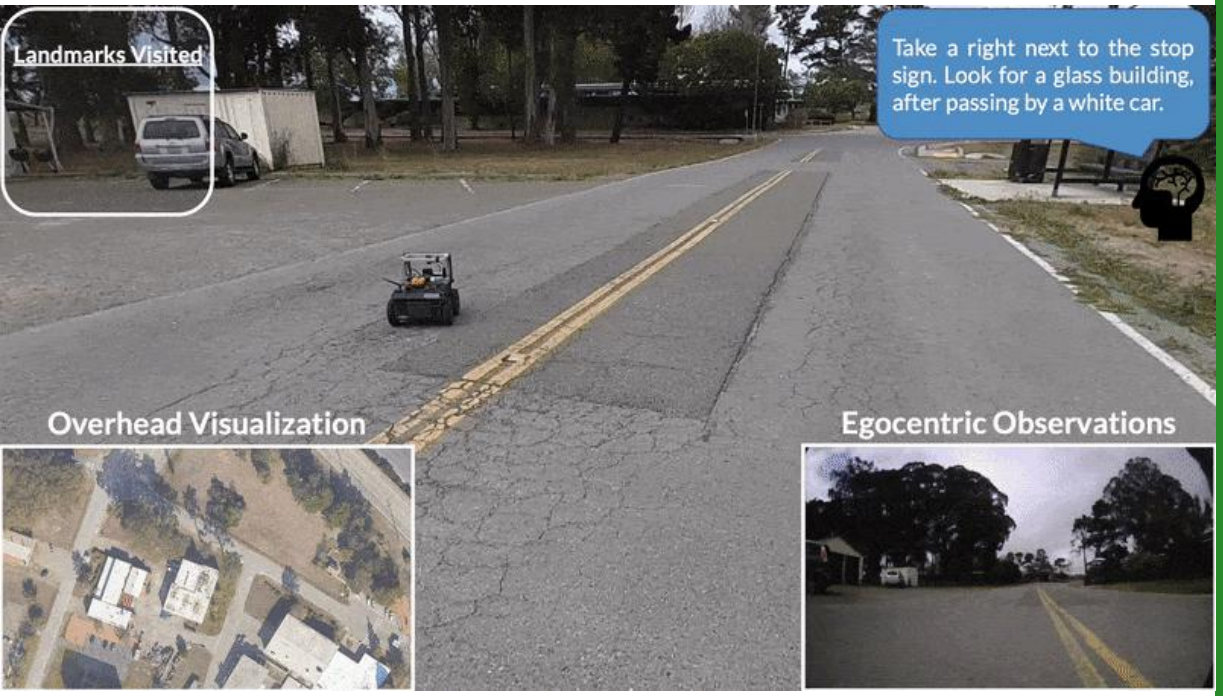
Sources:
https://www.compose.ai/
https://www.explainpaper.com/
https://www.getfilteroff.com/scammer-bot-series

Future of models

Understanding environment eg. playing games



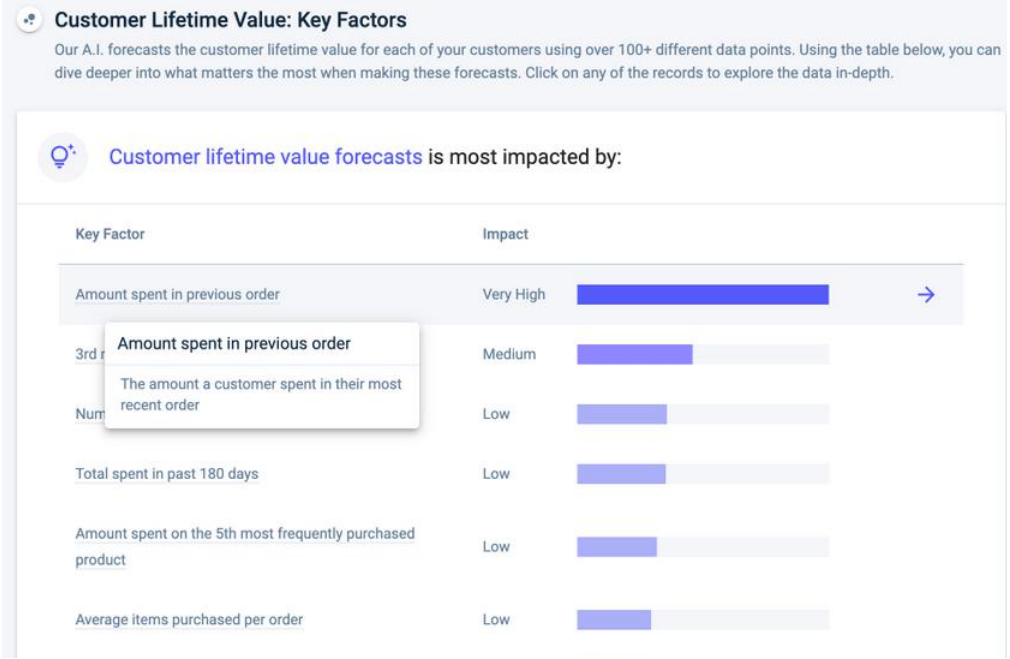
Sources:
https://openai.com/blog/vpt/



Navigation using textual instruction in real world

Source:
https://sites.google.com/view/lmnav

Explainability



"Model explainability means the algorithm and its decision or output can be understood by a human. It is the process of analysing machine learning model decisions and results to understand the reasoning behind the system's decision."

Sources:
https://www.apteo.co/post/zero-inflated-regression-and-explainability-for-customer-retention-forecasts
https://www.seldon.io/explainability-in-machine-learning

Running models on Red Hat OpenShift

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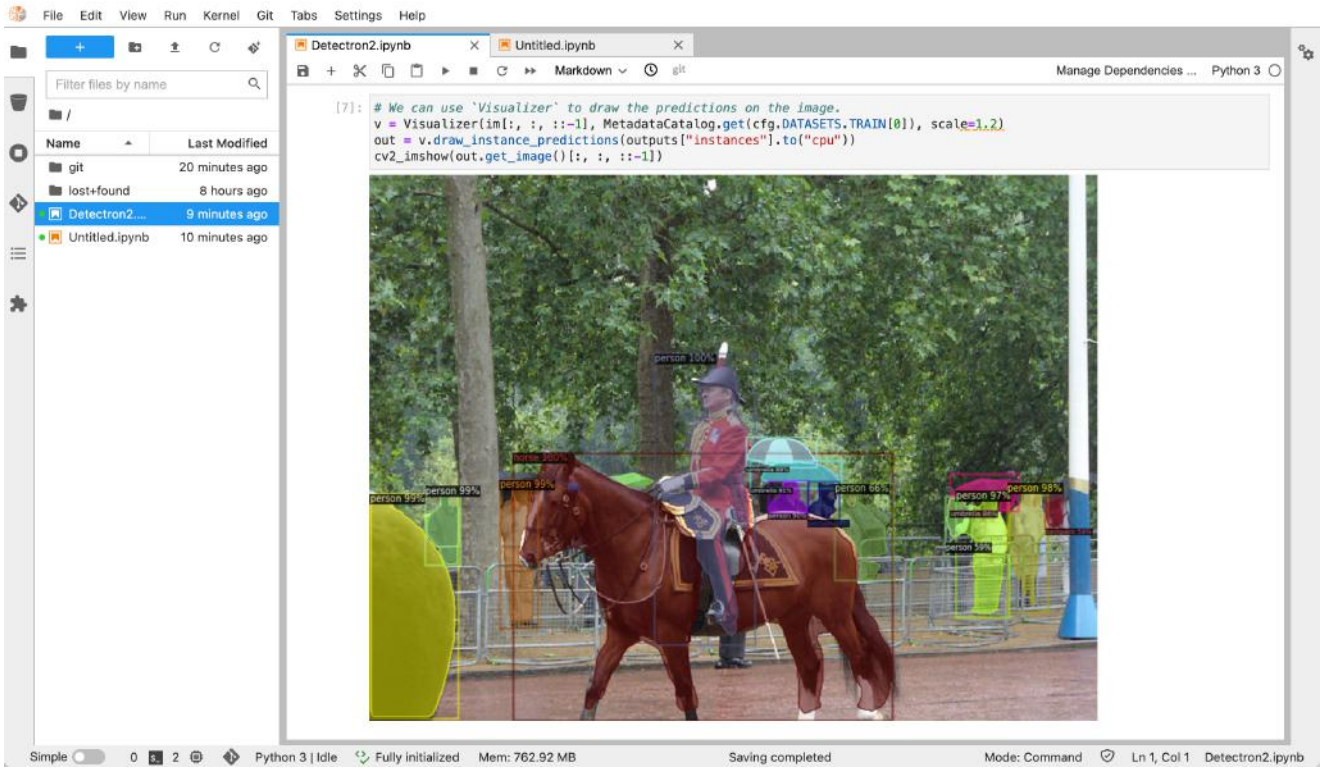
OpenShift
Data Science

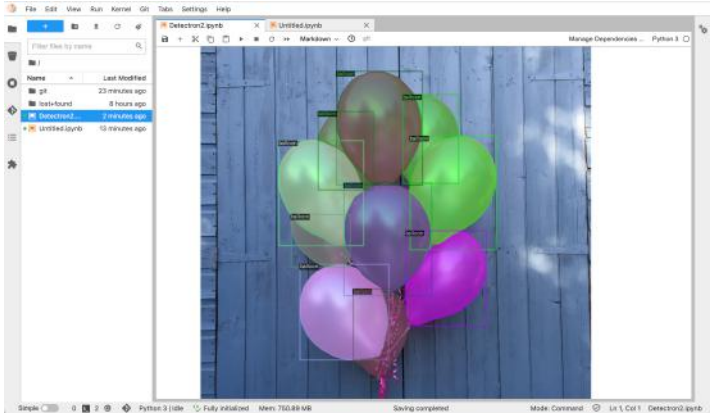
1. Spawn new notebook and run on pre-trained models



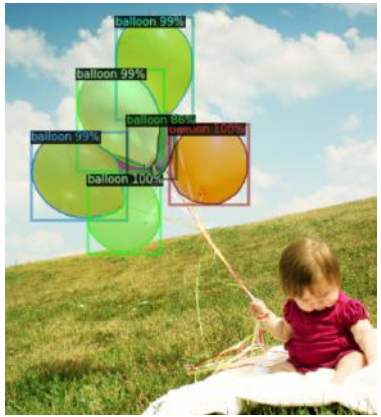
Source:
https://gist.github.com/indigoviolet/d49b84e153bb58bee809b55dc8d47ee5

Red Hat
OpenShift
Data Science

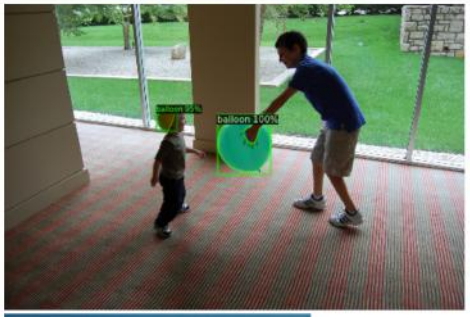
2. Gather own dataset and train



3. Run interference on own model




```
[ ]: from detectron2.utils.visualizer import ColorMode
dataset_dicts = get_balloon_dicts("balloon/val")
for d in random.sample(dataset_dicts, 3):
    im = cv2.imread(d["file_name"])
    outputs = predictor(im)
    v = Visualizer(im[:, :, ::-1],
                   metadata=balloon_metadata,
                   scale=0.5,
                   instance_mode=ColorMode.IMAGE_BW
    )
    out = v.draw_instance_predictions(outputs["instances"].to("cpu"))
    cv2_imshow(out.get_image()[:, :, ::-1])
```



Source:
https://gist.github.com/indigoviolet/d49b84e153bb58bee809b55dc8d47ee5

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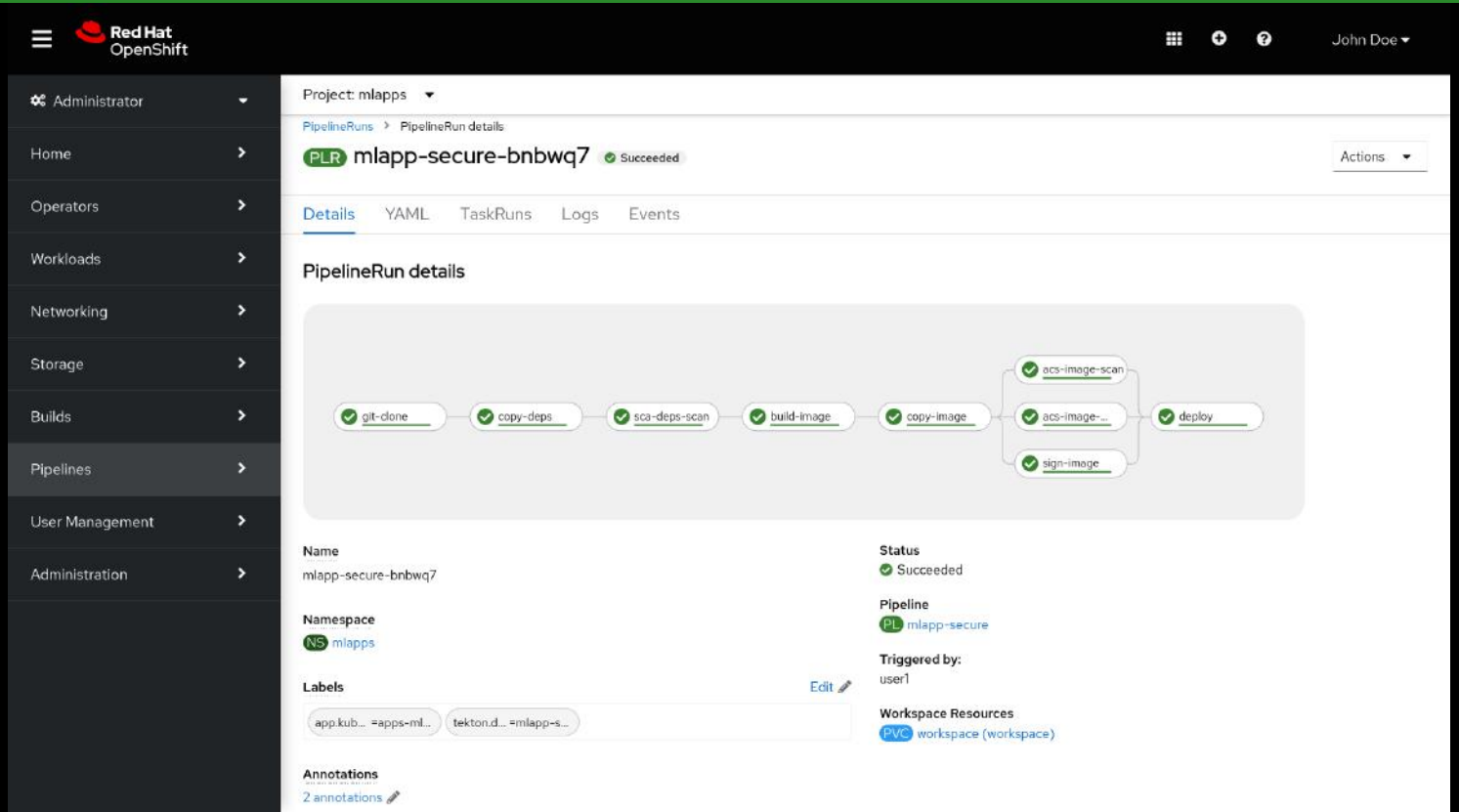
Create pipelines!



Thank you for your time

If case of any questions - contact me:

Matt Doroszko

matt@airev.us

doroszko.net