



Zainspiruj się sztuczną inteligencją

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Presenters:

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Jarosław Stakuń - RHCA, Principal Solution Architect, Red Hat

AI REV 



Red Hat

Image generation models

Image generation

CAT in 2017



CAT in 2022



How it works

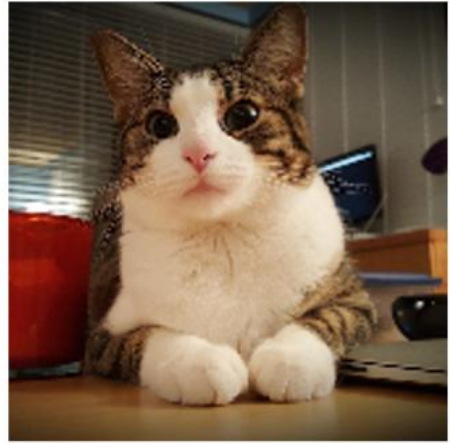
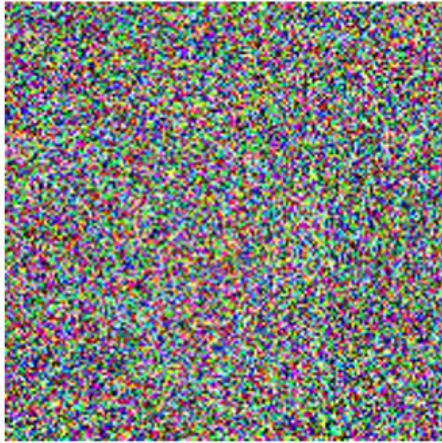




Image Outpainting

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?



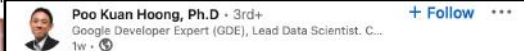
I started playing around with Stable Diffusion on the weekend and uploaded a few reference pictures of myself. I'll continue to share my progress, and I like the early results after 15 mins of tinkering. ...
...see more



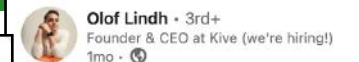
Generating images of myself using Stable Diffusion is awesome.



I trained Stable Diffusion (a generative AI) on photos of myself, and now can generate pictures of myself purely based on text input. So for example entering "A photo of <Guido> as Captain America" will generate the following:



Trained pics of myself with Stable Diffusion+DreamBooth models. Generated pics of myself in Star Wars, Star Trek, at Great Wall of China and as a pilot. Now, it is simple to generate pics of myself.



Just trained a Stable Diffusion (AI) model on my childhood photos and be:



Happy Friday, network! Are you in need of a new LinkedIn profile photo? The photos below are fully AI generated (promise you I've never worn any of those suits and ties ;)). Gijs Verdonchot and I were playing around with ...see more



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

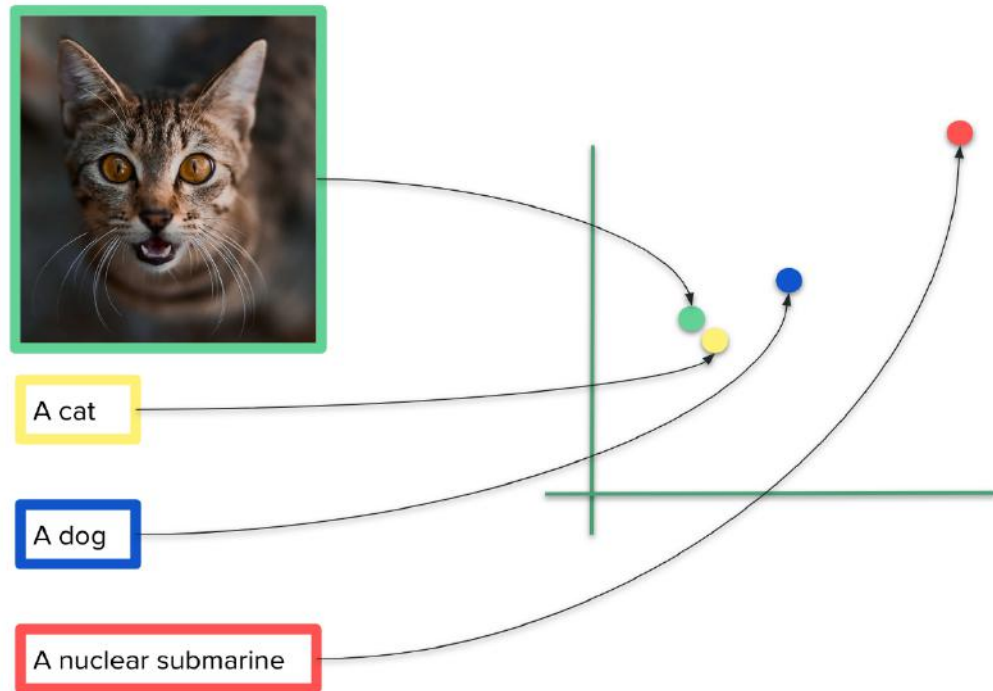


Image search

Source:
<https://haveibeenentrained.com/>

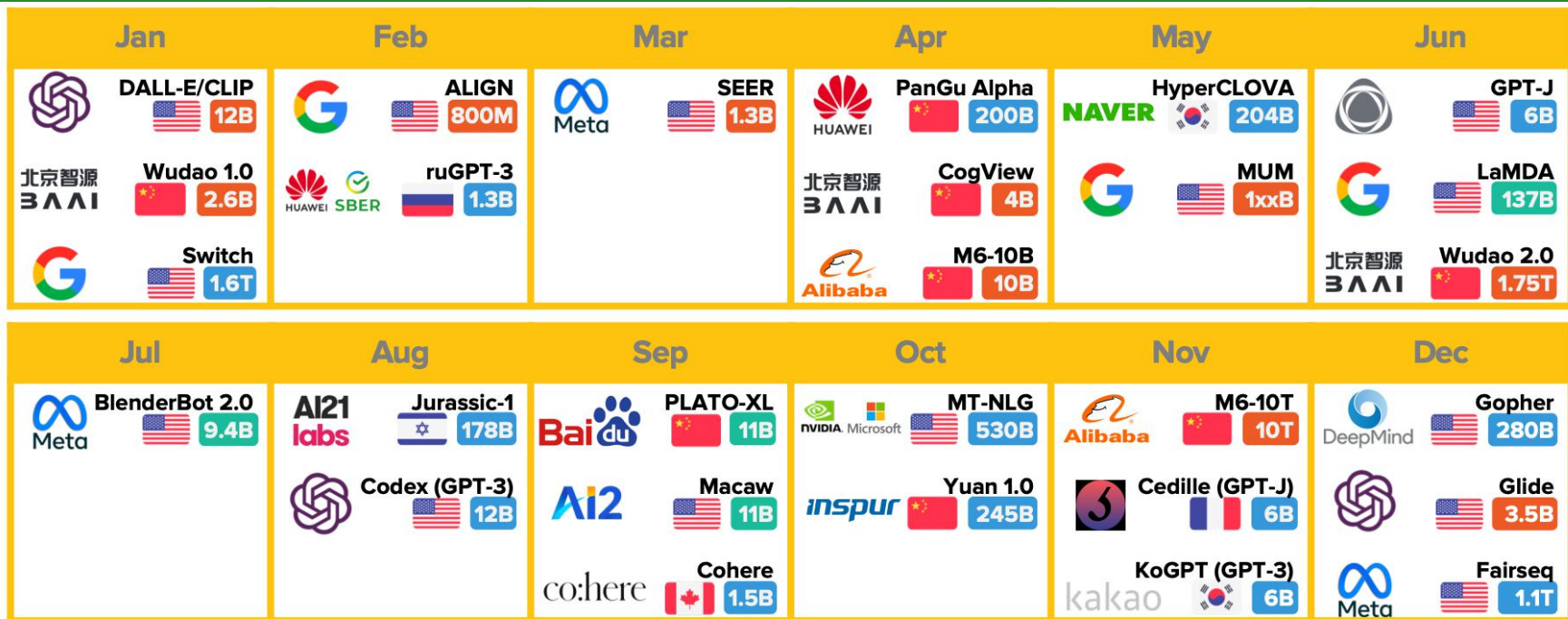
cat in a kayak

These images were the closest matches from the LAION-5B training
Opt into or out of AI Art systems with Spawning. [Learn More](#)



Text models


timeline of textual models in 2021



Source: Selected highlights only. Alan D. Thompson, November 2021. <https://lilearchitect.ai/>

<https://lilearchitect.ai/timeline/>

 Language model

 Dialogue model (chatbot)

 Multi-modal model (images)

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

Summarization

Examples ▾

Artificial intelligence is ceasing to be solely a tool that automates simple processes. Solutions from this field are beginning to influence human creativity, the creative process, and allow us to achieve much more in less time. In this session, we will look at the most interesting solutions from cutting-edge discoveries in the field of artificial intelligence, which will improve work not only in companies, but can also affect our daily lives. We will show how in a simple way, anyone can run and train models themselves using the Red Hat Openshift platform. And we will also look at what artificial intelligence solutions will be available in the near future and what each of us will be able to use.

Compute

Computation time on cpu: 5.473 s

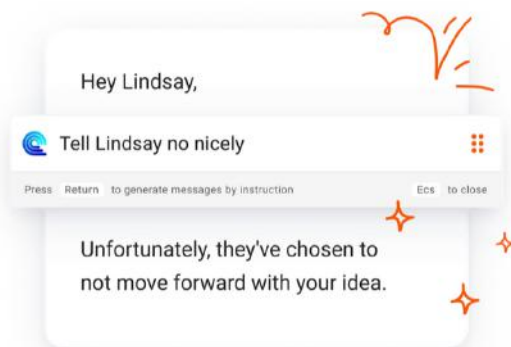
In this session, we will look at the most interesting solutions from cutting-edge discoveries in the field of artificial intelligence, which will improve work not only in companies, but can also affect our daily lives.

Summarization

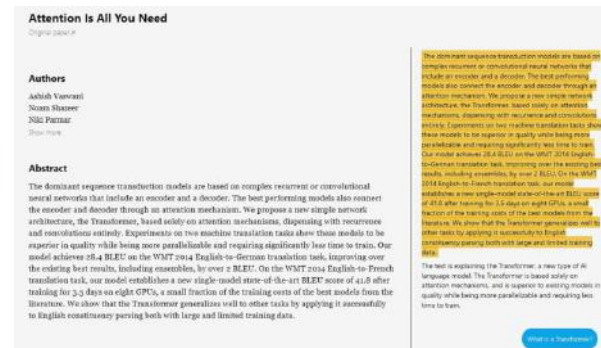
Source:
<https://huggingface.co/google/pegasus-xsum>

Other examples

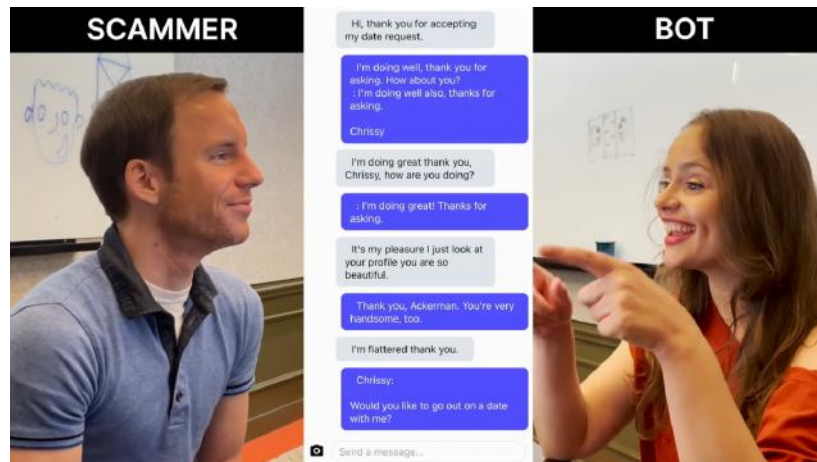
Generate email responses



Explain long and complicated papers



Troll scammers



Sources:

<https://www.compose.ai/>

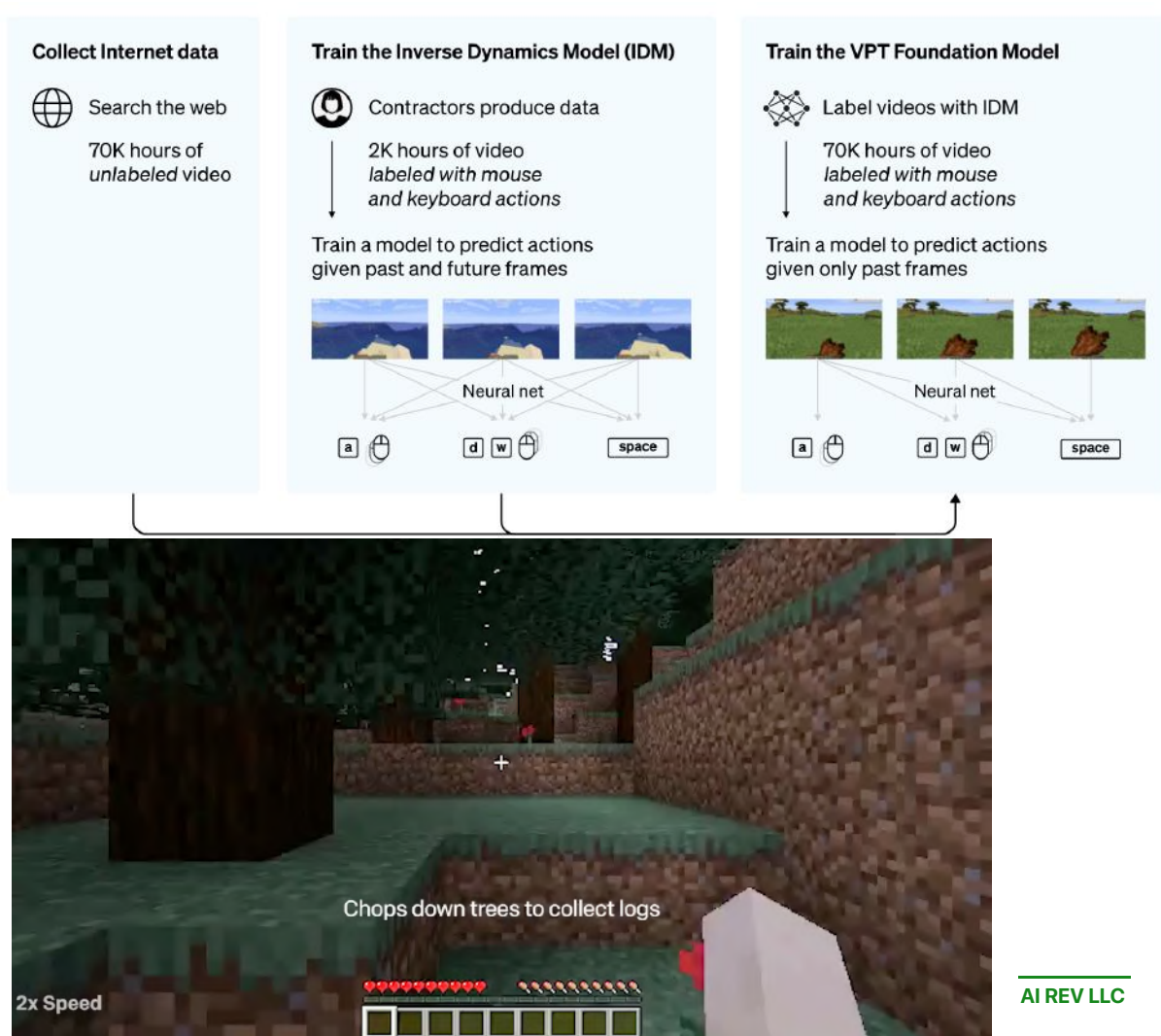
<https://www.explainpaper.com/>

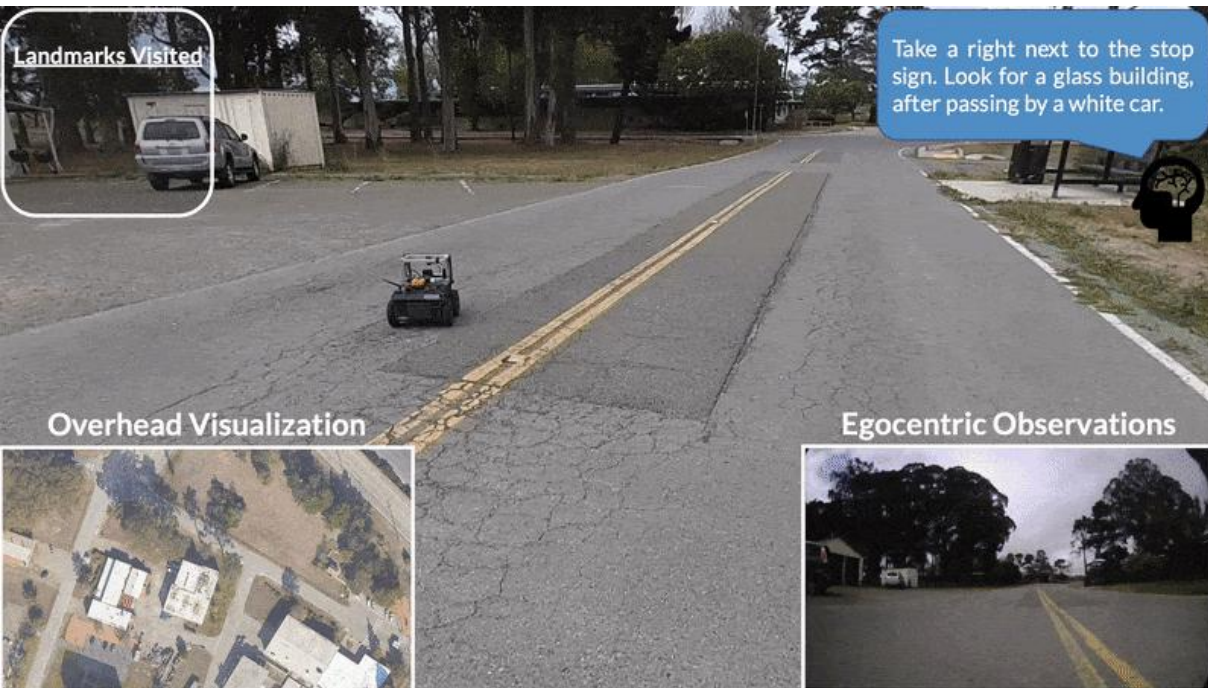
<https://www.getfilteroff.com/scammer-bot-series>

Future of models

Understanding environment eg. playing games

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





Navigation using textual instruction in real world

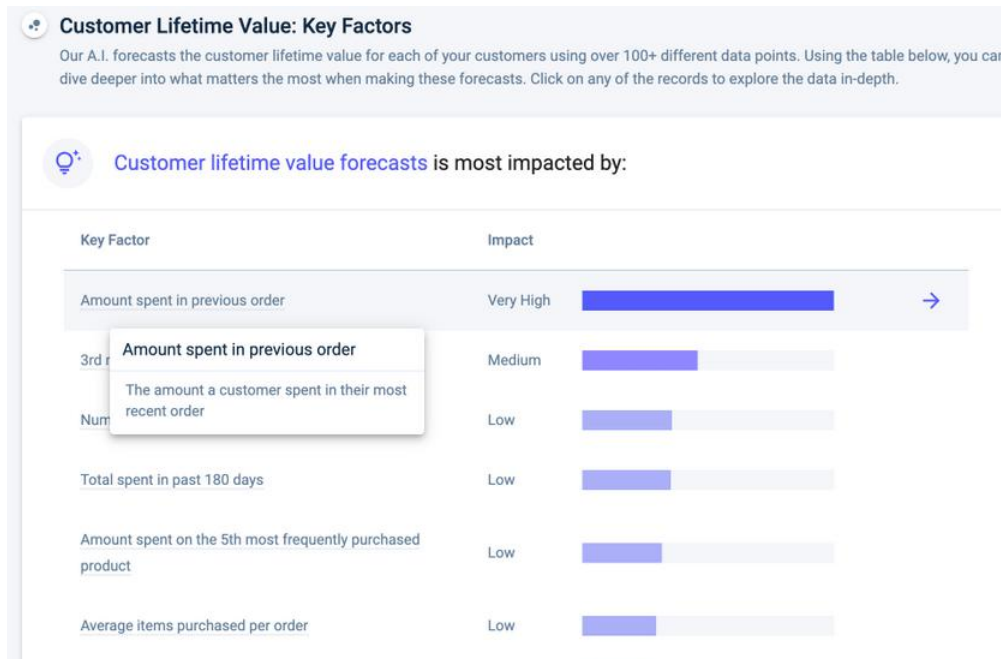
Source:
<https://sites.google.com/view/lmnav>

Explainability

Sources:

<https://www.apteo.co/post/zero-inflated-regression-and-explainability-for-customer-retention-forecasts>

<https://www.seldon.io/explainability-in-machine-learning>



“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.”

Running models on Red Hat OpenShift

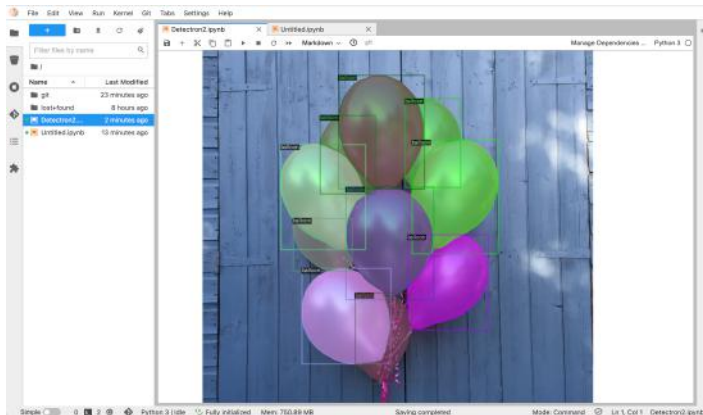
[illegible]

Source:
[https://gist.github.com/indigoviolet/
d49b84e153bb58bee809b55dc8d47ee5](https://gist.github.com/indigoviolet/d49b84e153bb58bee809b55dc8d47ee5)



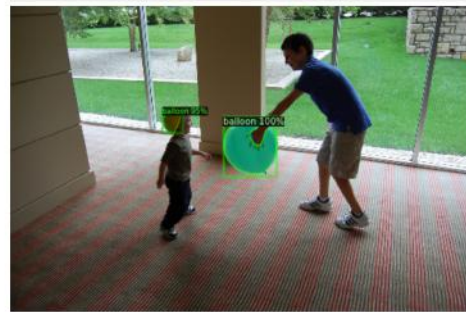
Red Hat OpenShift Data Science

2. Gather own dataset and train



3. Run inference 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>



Red Hat
OpenShift
Data Science

Create pipelines!

Red Hat
OpenShift

Administrator

Home

Operators

Workloads

Networking

Storage

Builds

Pipelines

User Management

Administration

Project: mlapps

PipelineRuns > PipelineRun details

PLR mlapp-secure-bnbwq7 Succeeded

Actions

Details | YAML | TaskRuns | Logs | Events

PipelineRun details

```
graph LR; A[git-clone] --> B[copy-deps]; B --> C[sca-deps-scan]; C --> D[build-image]; D --> E[copy-image]; E --> F[acs-image-scan]; E --> G[acs-image-...]; E --> H[sign-image]; F --> I[deploy]; G --> I; H --> I
```

Name

mlapp-secure-bnbwq7

Namespace

NS mlapps

Labels

app.kub...=apps-ml... tekton.d...=mlapp-s...

Annotations

2 annotations

Status

Succeeded

Pipeline

PL mlapp-secure

Triggered by:

user1

Workspace Resources

PVC workspace (workspace)



Thank you for your time

If case of any questions - contact me:



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