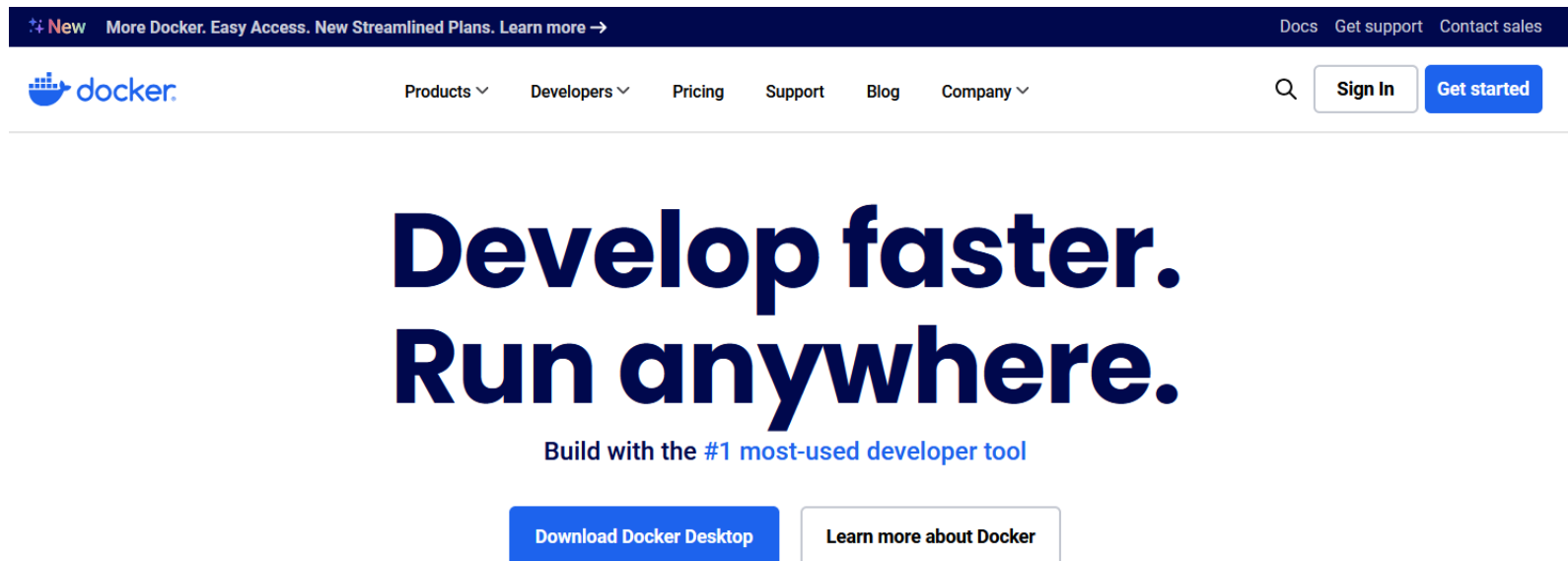




Photo by [Guillaume Bolduc](#) on [Unsplash](#)

Containers deliver goods to people!

Another ecosystem (that we'll use):





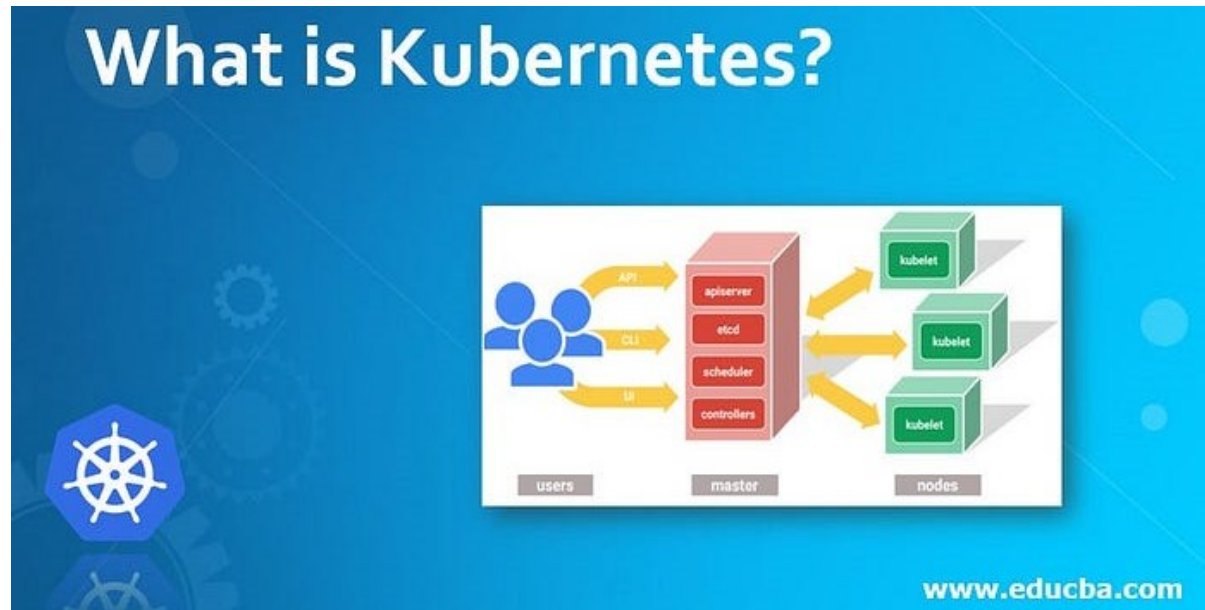
The orchestrator

bernetes

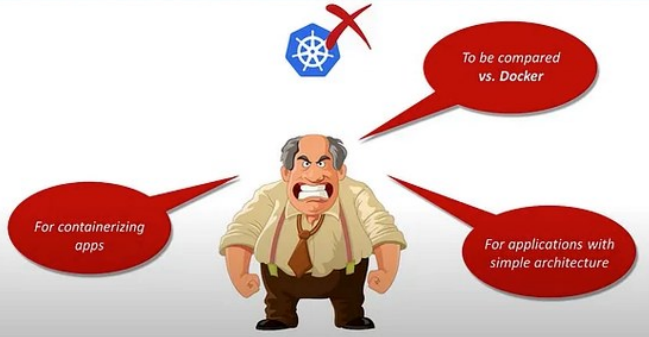
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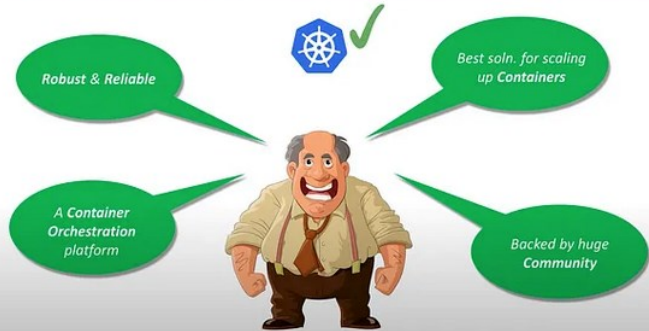


Kubernetes 'IS NOT'



The cartoon character is shown with a speech bubble saying "To be compared vs. Docker" and another saying "For containerizing apps". A red 'X' is placed over the Kubernetes logo, indicating that Kubernetes is not primarily for containerizing apps or compared to Docker.

Kubernetes 'ACTUALLY IS'



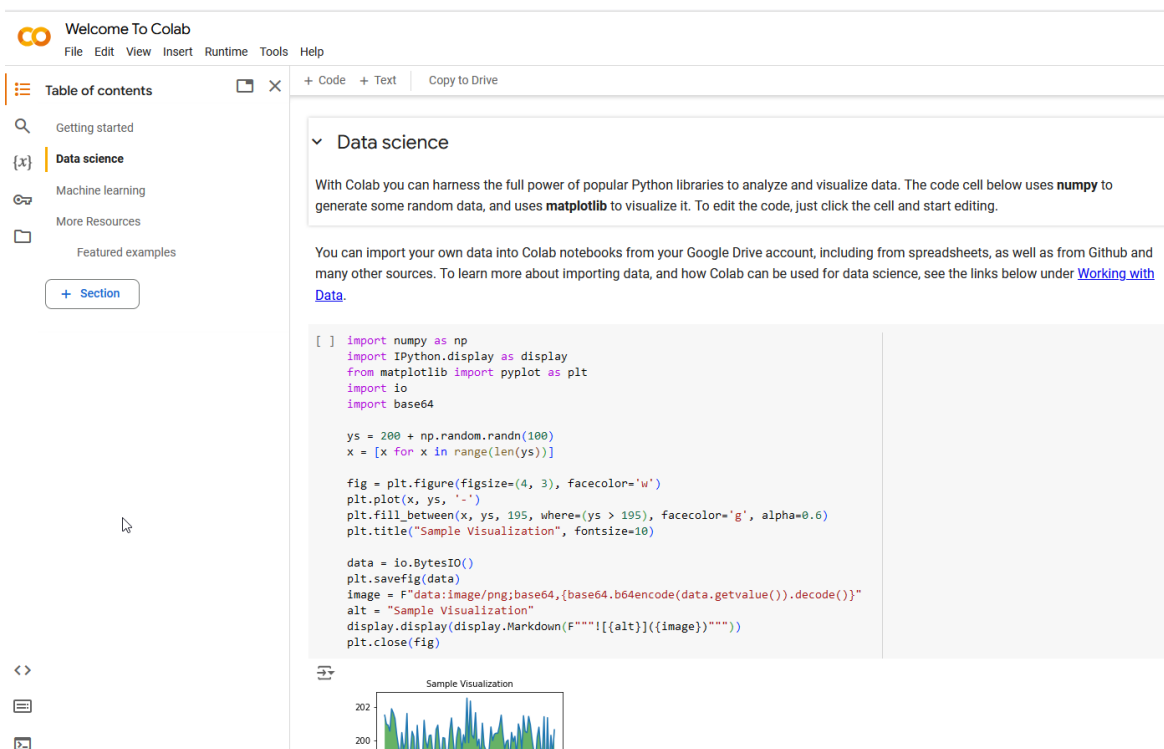
The cartoon character is shown with four speech bubbles: "Robust & Reliable", "Best soln. for scaling up Containers", "A Container Orchestration platform", and "Backed by huge Community". A green checkmark is placed over the Kubernetes logo, indicating that these are the actual characteristics of Kubernetes.



I use docker compose/swarm

Everything runs on their clouds

It's so comfortable . . .



The screenshot shows the Google Colab web interface. At the top, it says "Welcome To Colab" with a menu bar (File, Edit, View, Insert, Runtime, Tools, Help). On the left is a "Table of contents" sidebar with sections like "Getting started", "Data science" (selected), "Machine learning", "More Resources", and "Featured examples". The main area is titled "Data science" and contains text explaining how to use Colab for data analysis. Below the text is a code cell with Python code using numpy, matplotlib, and io to generate random data and create a plot. The code is as follows:

```
[ ] import numpy as np
import IPython.display as display
from matplotlib import pyplot as plt
import io
import base64

ys = 200 + np.random.randn(100)
x = [x for x in range(len(ys))]

fig = plt.figure(figsize=(4, 3), facecolor='w')
plt.plot(x, ys, '-')
plt.fill_between(x, ys, 195, where=(ys > 195), facecolor='g', alpha=0.6)
plt.title("Sample Visualization", fontsize=10)

data = io.BytesIO()
plt.savefig(data)
image = F"data:image/png;base64,{base64.b64encode(data.getvalue()).decode()}"
alt = "Sample Visualization"
display.display(display.Markdown(F"![[alt]]({image})"))
plt.close(fig)
```

Below the code cell, there is a small plot titled "Sample Visualization" showing a line graph with a green shaded area representing a confidence interval or uncertainty. The y-axis ranges from 200 to 202.



The screenshot shows the Amazon Bedrock website. The top navigation bar includes the AWS logo and links for "Produtos", "Soluções", "Definição de preço", "Documentação", "Aprenda", "Rede de parceiros", "AWS Marketplace", "Capacitação de clientes", "Eventos", "Explore mais", and a search icon. The main header area features the "Amazon Bedrock" title and a "Visão geral" link. Below this, there is a section titled "Amazon Bedrock" with the subtitle "A maneira mais fácil de criar e escalar aplicações de IA generativa com modelos básicos". Two buttons are present: "Comece a usar o Amazon Bedrock" and "Experimente a demonstração gratuita". At the bottom, there is a section titled "O que é o Amazon".

Summary:

tools that handle any/most job(s) in ML/BigData

Development : (Python) Pytorch

Model hub : Huggingface

Deployment : Docker (containers)

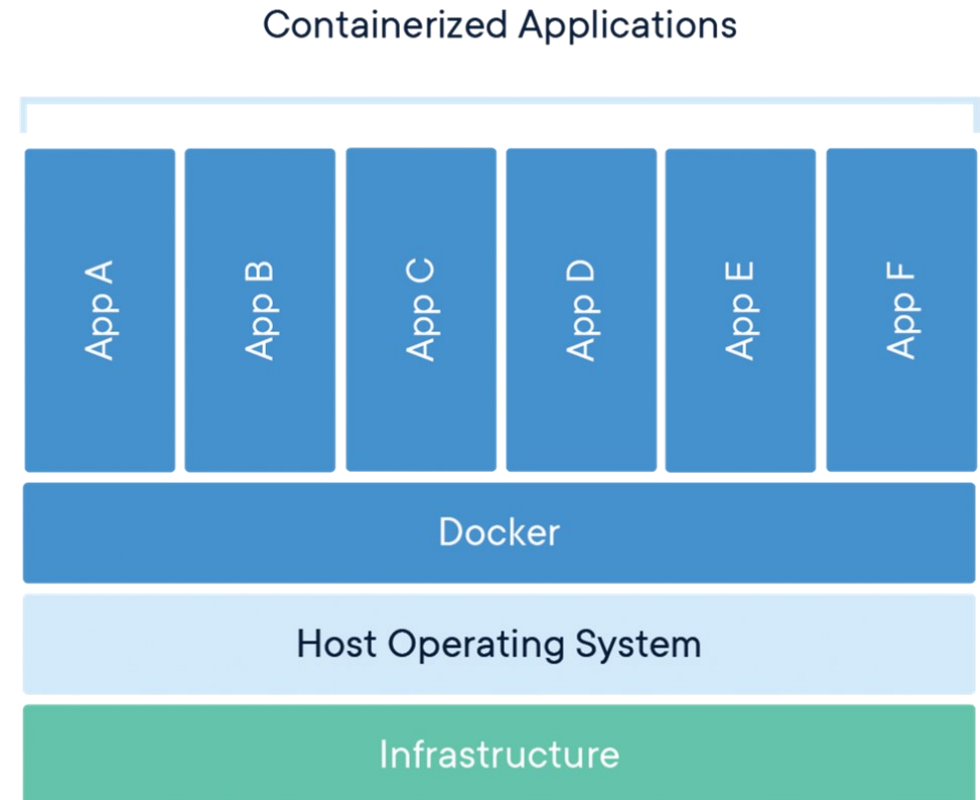
Scheduling, sync and runtime management: Docker-compose, docker-swarm, Kubernetes

Data storage : cloud/dist. file systems (Ceph), private or “usual suspects”. BTW run in containers!

Docker

Introduction to Docker

- Platform to package and publish an application as well as its dependencies
- Run the applications in any system with docker support



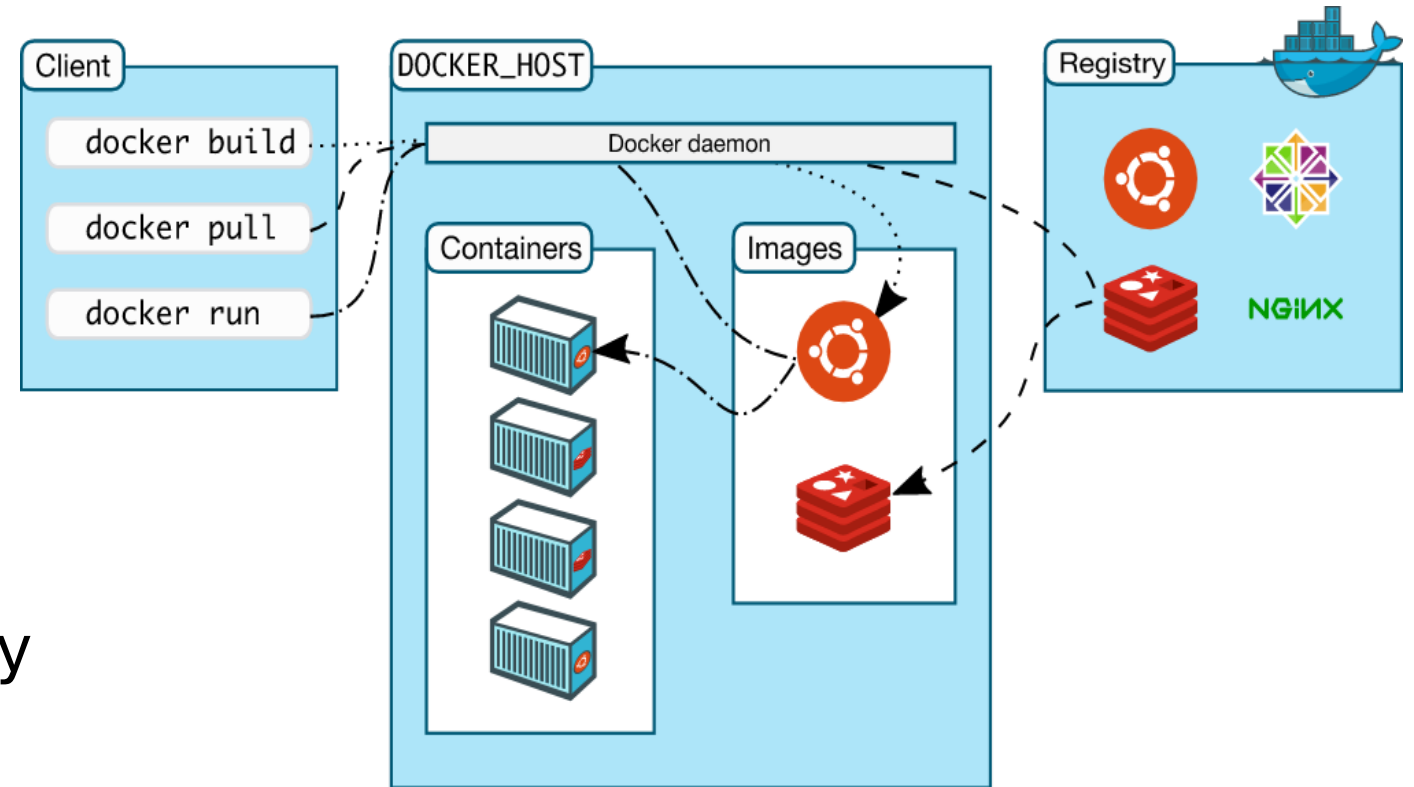
Docker Terminology

- Container: Process that runs isolated from other processes in the host, as well as other containers.
- Image: Read-only template with instructions necessary to create a docker container.
- Dockerfile: Sequence of instructions to build a docker image.

Introduction to Docker

Docker Workflow

- Create a Dockerfile
- Build the Image
- Run/Test the Container
- Publish the Image to a Registry
- Deploy Anywhere

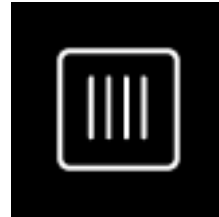


Some Docker vocabulary



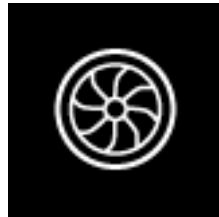
Docker Image

The basis of a Docker container. Represents a full application



Docker Container

The standard unit in which the application service resides and executes



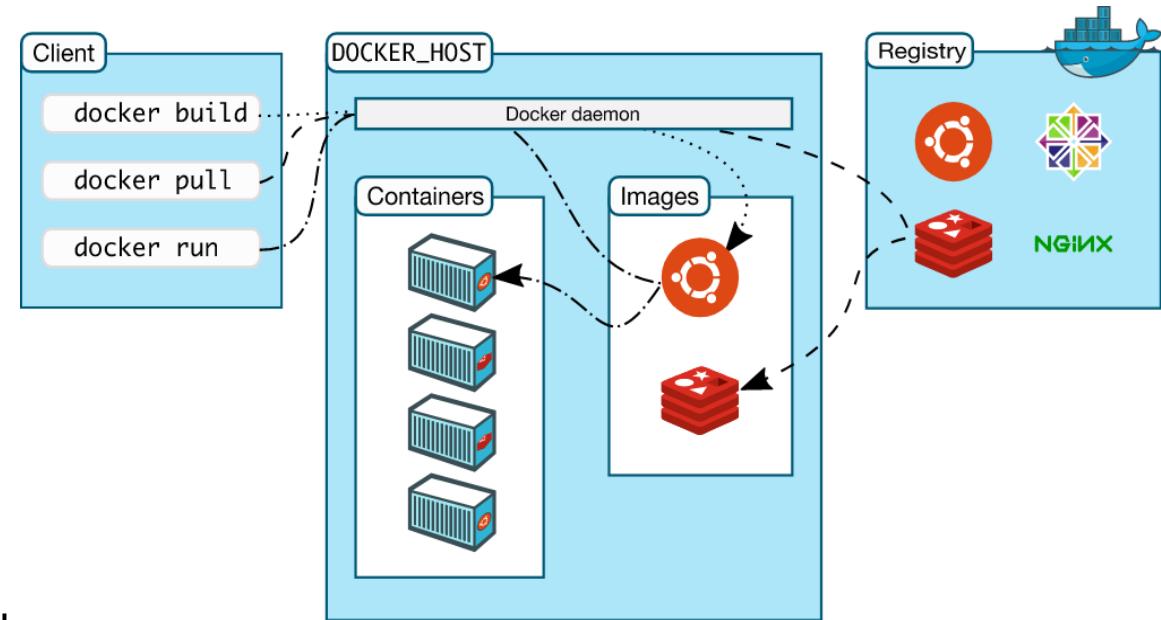
Docker Engine

Creates, ships and runs Docker containers deployable on a physical or virtual, host locally, in a datacenter or cloud service provider



Registry Service (Docker Hub or Docker Trusted Registry)

Cloud or server based storage and distribution service for your images



Basic Docker Commands

```
$ docker pull mikegcoleman/catweb:1.0
```

```
$ docker images
```

```
$ docker run -d -p 5000:5000 --name catweb mikegcoleman/catweb:latest
```

```
$ docker ps
```

```
$ docker stop catweb (or <container id>)
```

```
$ docker rm catweb (or <container id>)
```

```
$ docker rmi mikegcoleman/catweb:latest (or <image id>)
```

```
$ docker build -t mikegcoleman/catweb:2.0 .
```

```
$ docker push mikegcoleman/catweb:2.0
```

Dockerfile – Linux Example

```
1 # our base image
2 FROM alpine:latest
3
4 # Install python and pip
5 RUN apk add --update py-pip
6
7 # upgrade pip
8 RUN pip install --upgrade pip
9
10 # install Python modules needed by the Python app
11 COPY requirements.txt /usr/src/app/
12 RUN pip install --no-cache-dir -r /usr/src/app/requirements.txt
13
14 # copy files required for the app to run
15 COPY app.py /usr/src/app/
16 COPY templates/index.html /usr/src/app/templates/
17
18 # tell the port number the container should expose
19 EXPOSE 5000
20
21 # run the application
22 CMD ["python", "/usr/src/app/app.py"]
```

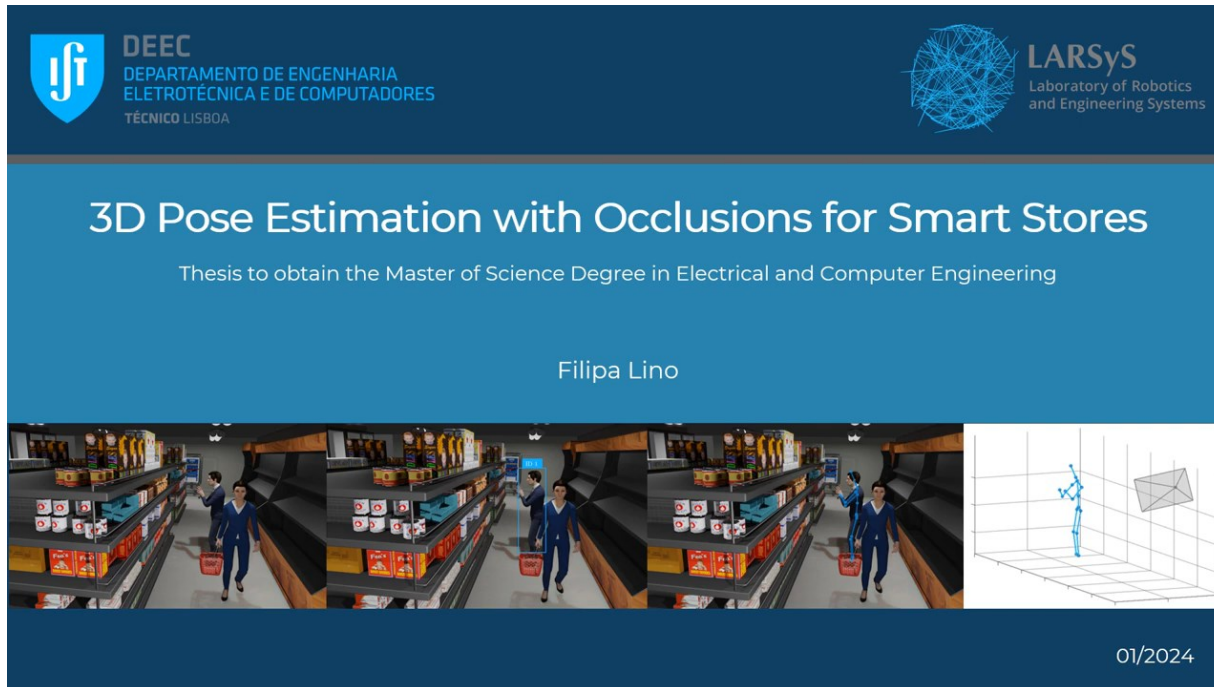
- Instructions on how to build a Docker image
- Looks very similar to “native” commands
- Important to optimize your Dockerfile

Critical Example

- photoprism

<http://smartretail.tecnico.ulisboa.pt/>

<https://blendmimic3d.github.io/BlendMimic3D/>







City modeling ?

← → ↻ https://www.cgtrader.com/3d-model/cape-town-b4839cfe-c9bc-419e-acc4-0f4be59... ☆


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 **accurate-architecture-for-blender** 

★★★★★ (49 reviews)

Response 95% in 4.1h

Traffic simulators ... deploy in 5 secs



The image shows a web browser window displaying the SUMO website. The browser's address bar shows the URL `https://eclipse.dev/sumo/`. The website has a green header with the SUMO logo and navigation links: About, Documentation, Downloads, Conference, References, Support, and Contact. The main content area features the title "Simulation of Urban MObility" and a welcome message: "Welcome to Eclipse SUMO (Simulation of Urban MObility), an open source, highly portable, microscopic and continuous multi-modal traffic simulation package designed to handle large networks." Below this, there is a button for "SUMO 1.21.0 for Windows 64-bit" and links for "Latest Development Version (Nightly Snapshots)" and "Older releases". At the bottom of the main content area, there are buttons for "View on GitHub", "Star" (2,524), and "Fork" (1,423). To the right of the text, there is a screenshot of the SUMO simulation interface, which shows a 3D view of a road intersection with cars and a 2D view of a traffic light cycle. At the very bottom of the page, there is a row of status indicators for various platforms and components, including linux, windows, macos, documentation, linkcheck, docker, linux-wheels, windows-wheels, macos-wheels, build, security, and translated.

<https://eclipse.dev/sumo/>

bookmarks... Getting Started Gestão · Docência DOT_JST DOT_JSTID Inbox (7,326) - isr.jpco... My Drive - Google Dri... Escola AI4EU blogs Research >> Other

SUMO About Documentation Downloads Conference References Support Contact

Simulation of Urban MObility

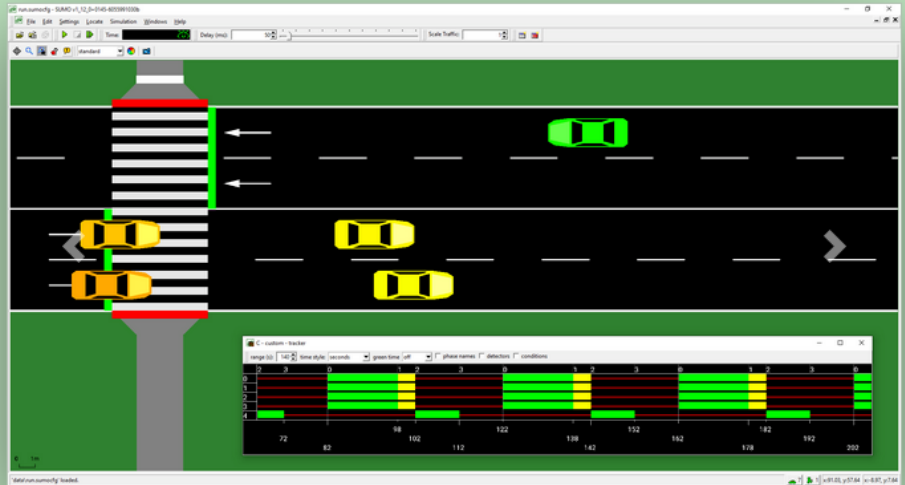
Welcome to Eclipse **SUMO** (Simulation of Urban MObility), an open source, highly portable, microscopic and continuous multi-modal traffic simulation package designed to handle large networks.

SUMO 1.21.0 for Windows 64-bit

[Latest Development Version \(Nightly Snapshots\)](#)

[Older releases](#)

[View on GitHub](#) [Star](#) 2,524 [Fork](#) 1,423



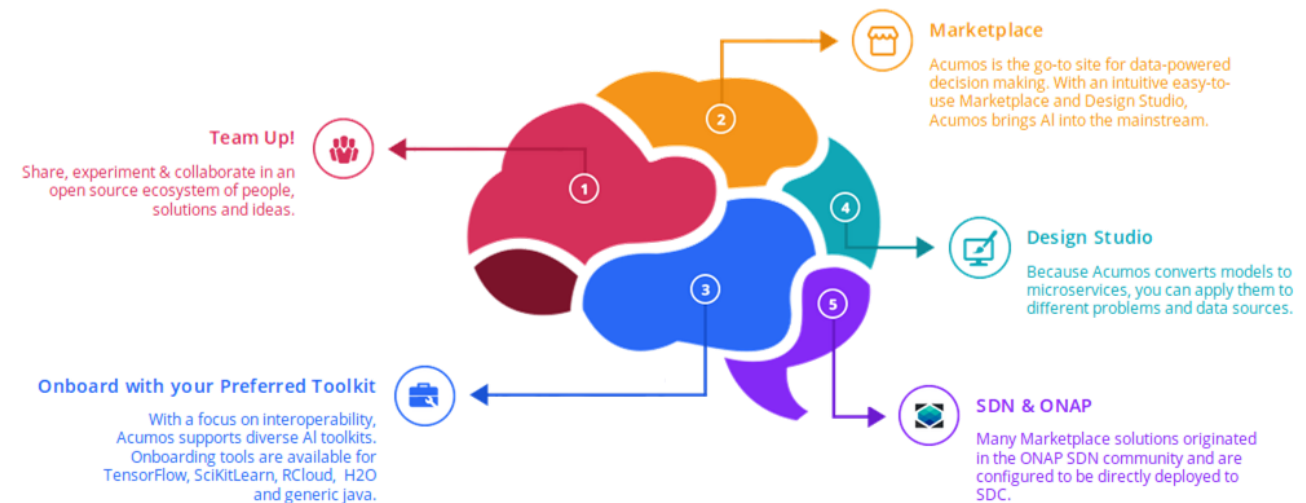
linux failing windows passing macos failing documentation failing linkcheck passing docker passing linux-wheels passing windows-wheels passing
macos-wheels failing build failing security A translated 72%

[More tests](#)

<http://ai4europe.eu>

<https://aiexp.ai4europe.eu/>

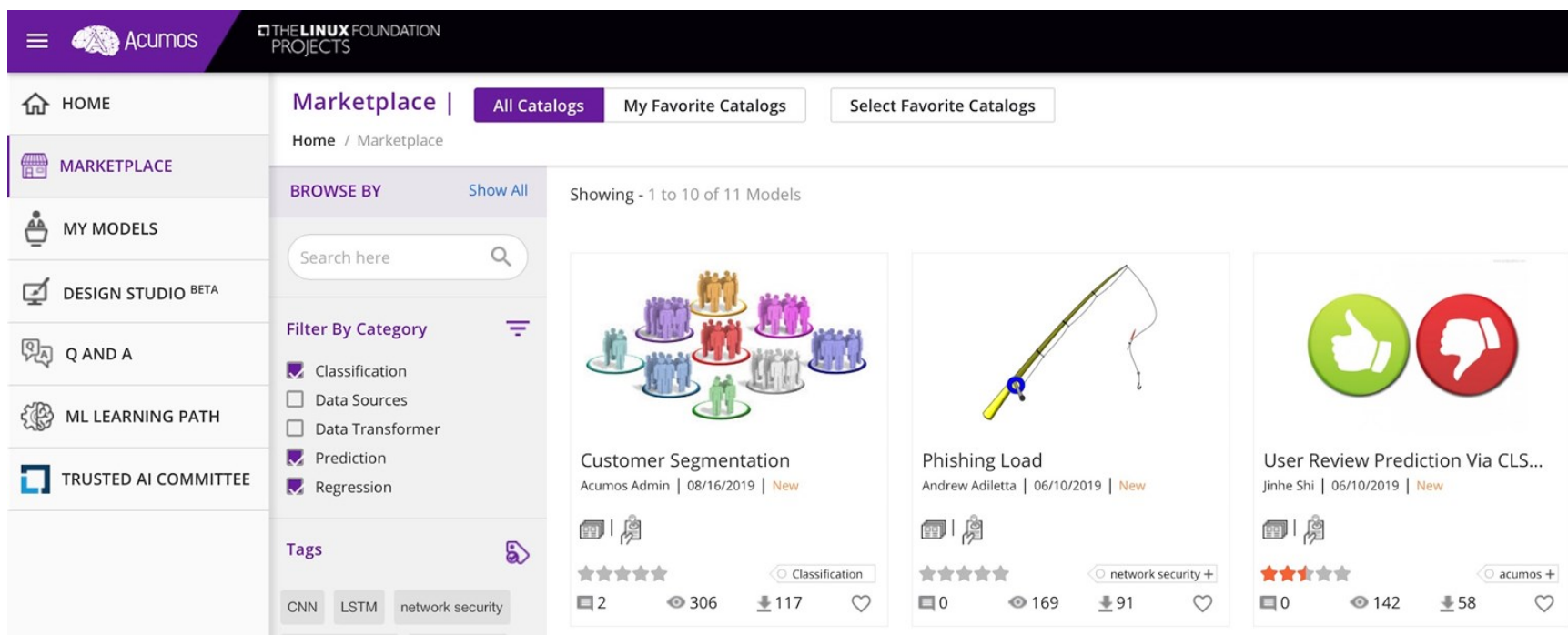
- Framework to build, share and deploy AI applications
- Standardizes infrastructure and other components to run AI environments



Acumos

Marketplace

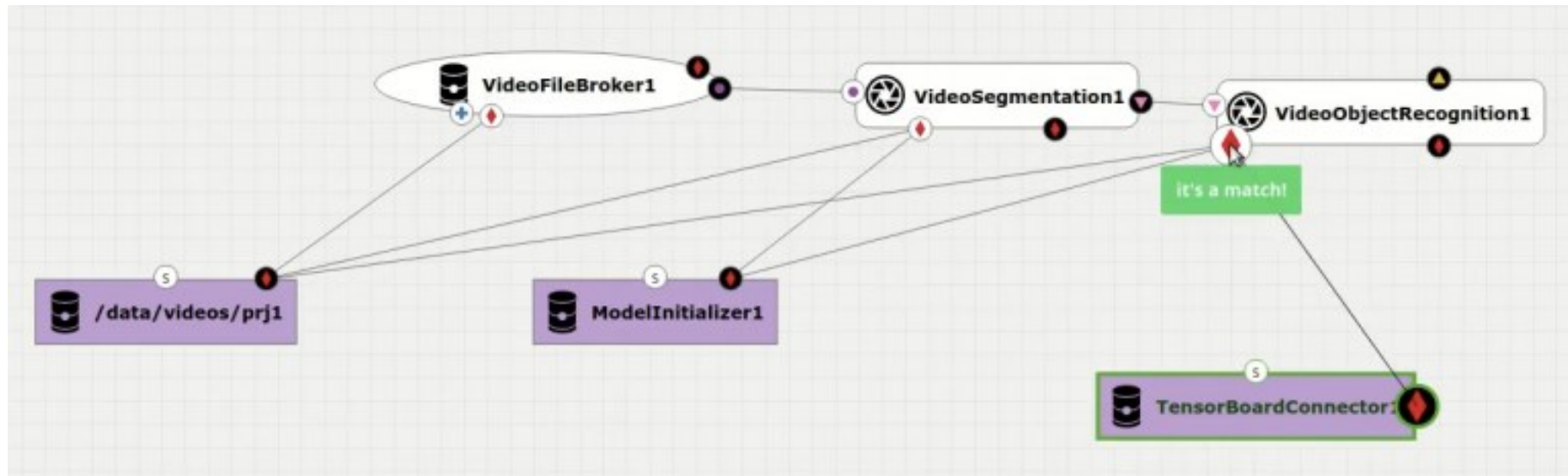
- Place to publish generic AI algorithms in the form of “assets”



Acumos

Design Studio

- Build pipelines with multiple assets and deploy to the cloud



Conclusion

New More Docker. Easy Access. New Streamlined Plans. Learn more →

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Q

Sign In

Get started

Develop faster. Run anywhere.

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Learn more about Docker

https://pytorch.org


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TasksLibrariesDatasetsLanguagesLicensesOther

Q Filter Tasks by name

Multimodal

- Text-to-ImageImage-to-Text
- Text-to-VideoVisual Question Answering
- Document Question AnsweringGraph Machine Learning

Computer Vision

- Depth EstimationImage Classification
- Object DetectionImage Segmentation
- Image-to-ImageUnconditional Image Generation
- Video ClassificationZero-Shot Image Classification

Natural Language Processing

- Text ClassificationToken Classification
- Table Question AnsweringQuestion Answering
- Zero-Shot ClassificationTranslation
- SummarizationConversational
- Text GenerationText2Text Generation
- Sentence Similarity

Audio

- Text-to-SpeechAutomatic Speech Recognition

Models 469,541 Filter by name

meta-llama/Llama-2-70b

- Text Generation • Updated 4 days ago • ± 25.2k • ♥ 64

stabilityai/stable-diffusion-xl-base-0.9

- Updated 6 days ago • ± 2.01k • ♥ 393

openchat/openchat

- Text Generation • Updated 2 days ago • ± 1.3k • ♥ 136

lillyasviel/ControlNet-v1-1

- Updated Apr 26 • ♥ 1.87k

cerspense/zeroscope_v2_XL

- Updated 3 days ago • ± 2.66k • ♥ 334

meta-llama/Llama-2-13b

- Text Generation • Updated 4 days ago • ± 326 • ♥ 64

tiiauae/falcon-40b-instruct

- Text Generation • Updated 27 days ago • ± 288k • ♥ 899

WizardLM/WizardCoder-15B-V1.0

- Text Generation • Updated 3 days ago • ± 12.5k • ♥ 332

to-date on the latest news and topics from the PyTorch Foundation.

PYTORCH 2.4

PyTorch 2.4 adds Python 3.12 support for torch.compile, FSDP2, custom ops API, and optimizations for AWS Graviton and GenAI workloads on CPUs.

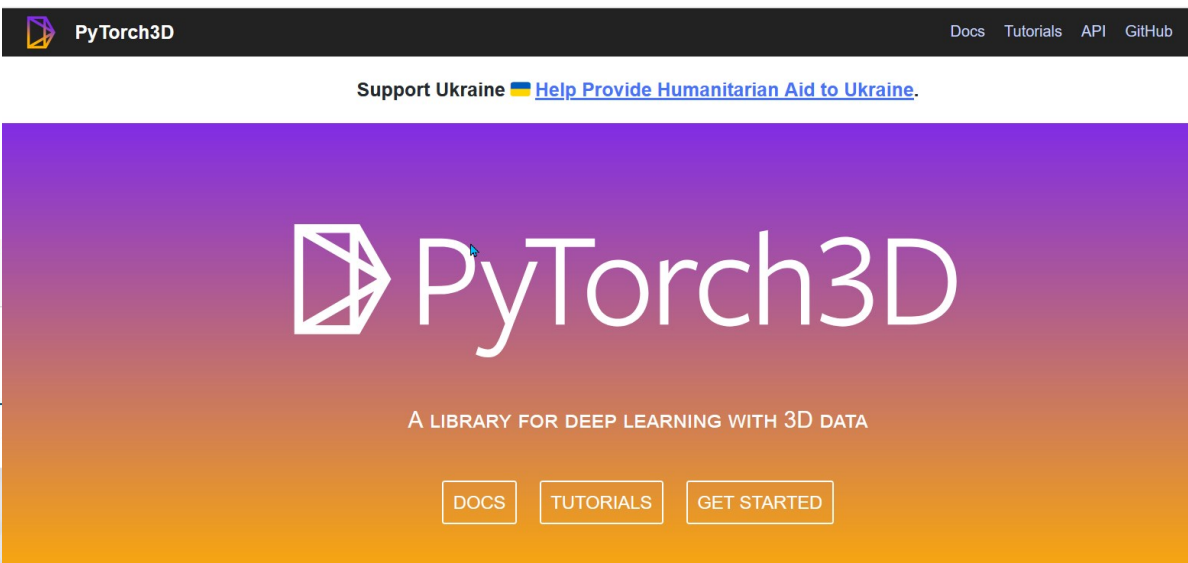
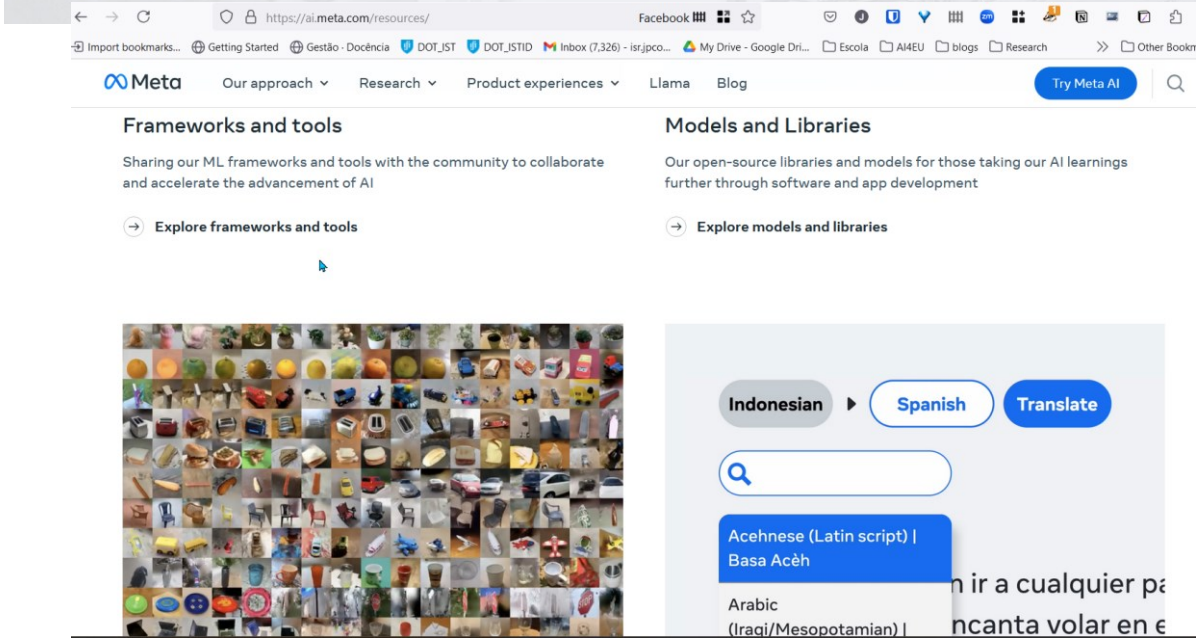
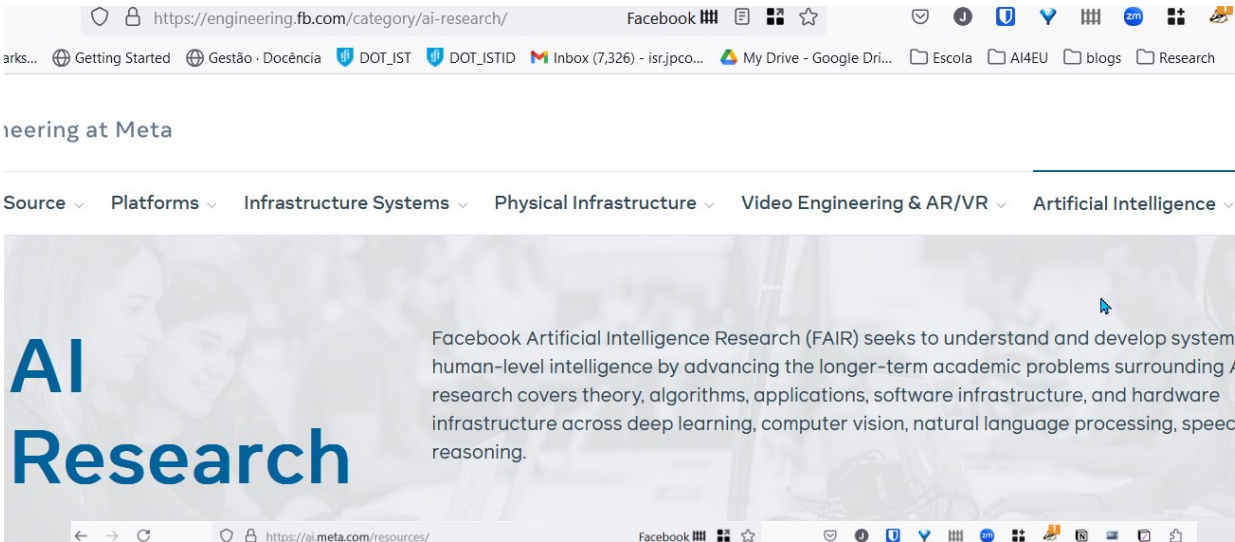
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Become an integral part of the PyTorch Foundation, to build and shape the future of AI.

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Unavoidable ... foundation models



Segment Anything

Research by Meta AI

AI Computer Vision Research

Segment Anything Model (SAM): a new AI model from Meta AI that can "cut out" any object, in any image, with a single click

SAM is a promptable segmentation system with zero-shot generalization to unfamiliar objects and images, without the need for additional training.

YOLO on Docker !