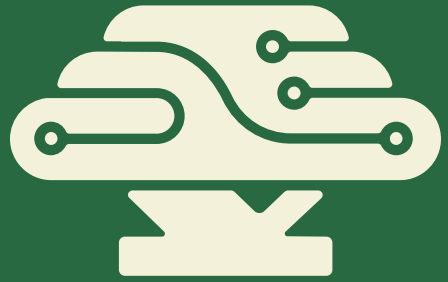
AI4Drones Hackathon @ GoZinc

30-31 May, 2018

May 28, 2018

Marcel Würsch (FHNW)



BONSEYES

ARTIFICIAL INTELLIGENCE MARKETPLACE

GOALS

- Introduction to the Bonseyes Marketplace
- Introduction to Docker
  - Add Bonseyes Docker Repository
- Transferring an Artifact
- Face Recognition Introduction
  - Inference with Model from Bonseyes Marketplace
- Hackathon Schedule

Bonseyes Marketplace

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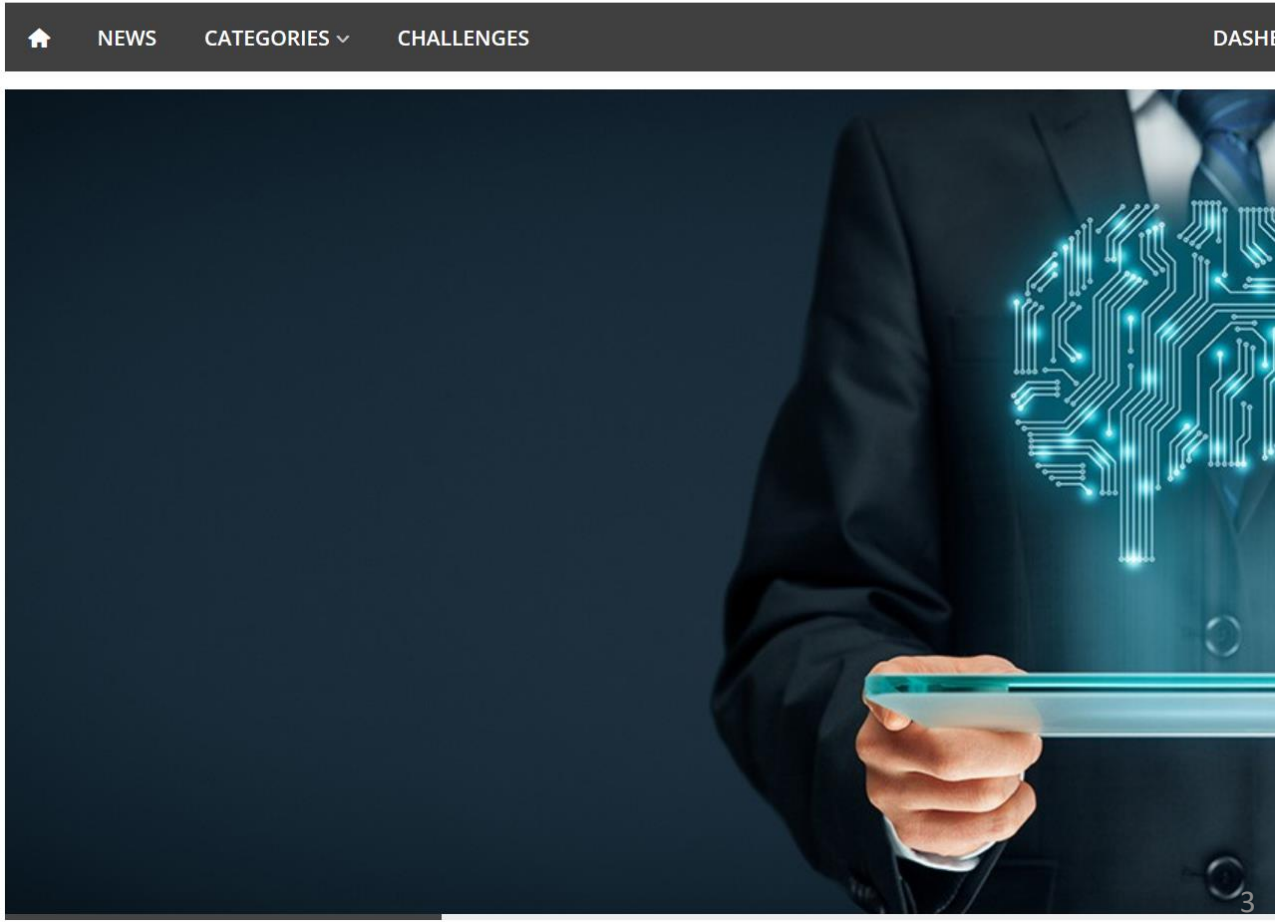
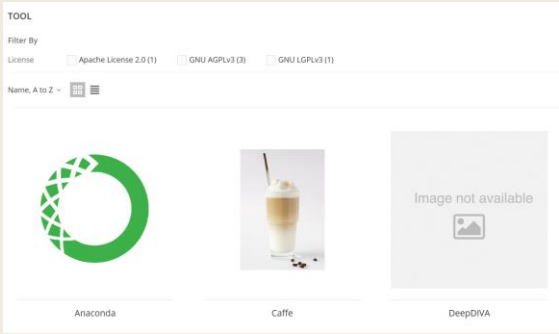


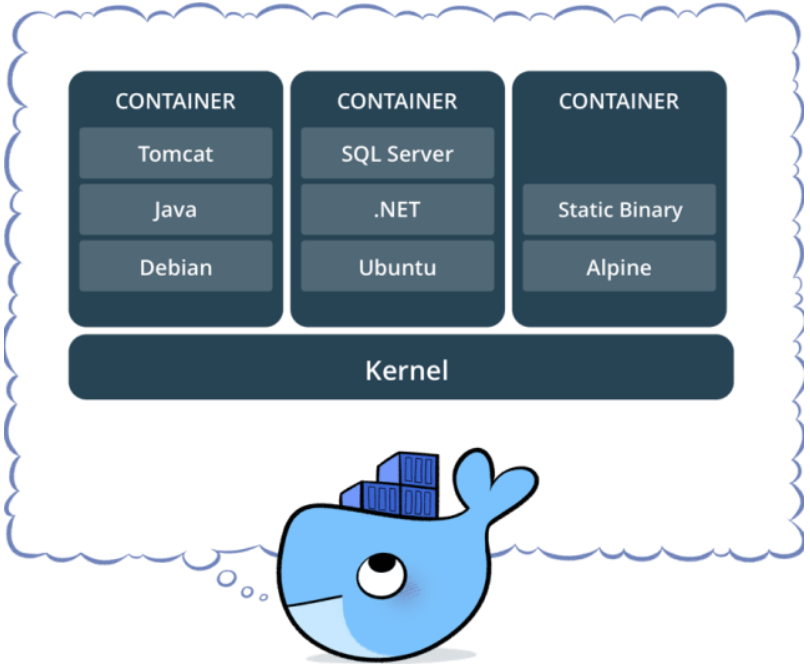
BONSEYES MARKETPLACE

- Marketplace for Artificial Intelligence (AI) Artifacts
  - online at: http://bonseyes.smartprojectcloud.com/
  - Full access after registration



- Provides access to
  - Tools, Models, Data, Annotated Data (Ground Truth)

Introduction to Docker



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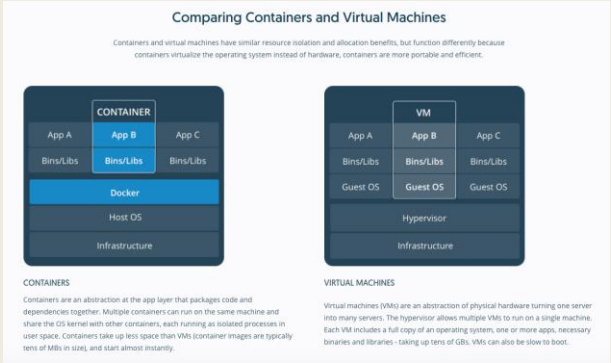
DOCKER

- Virtualization on Application Level
- Bonseyes Provides most Artifacts as Docker Images



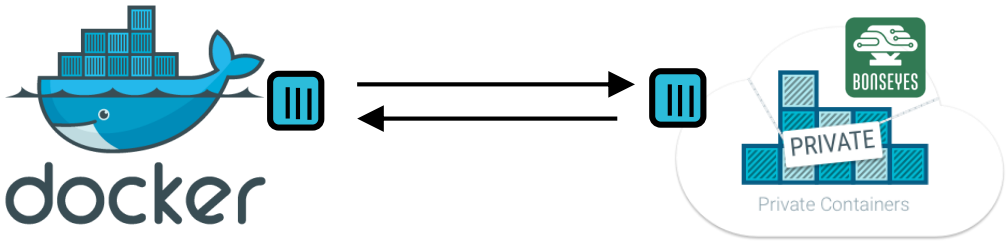
WHAT IS A DOCKER IMAGE

- Definition of Docker Image:
  - Docker images are the basis of containers. An Image is an ordered collection of root filesystem changes and the corresponding execution parameters for use within a container runtime. An image typically contains a union of layered filesystems stacked on top of each other. An image does not have state and it never changes.

WHAT IS A DOCKER CONTAINER

- Definition of a Docker Container:
  - A container is a runtime instance of a docker image.
    - A Docker container consists of
    - A Docker image
    - An execution environment
    - A standard set of instructions
  - The concept is borrowed from Shipping Containers, which define a standard to ship goods globally. Docker defines a standard to ship software.

CONFIGURE CONNECTION



Local Docker host at TUM

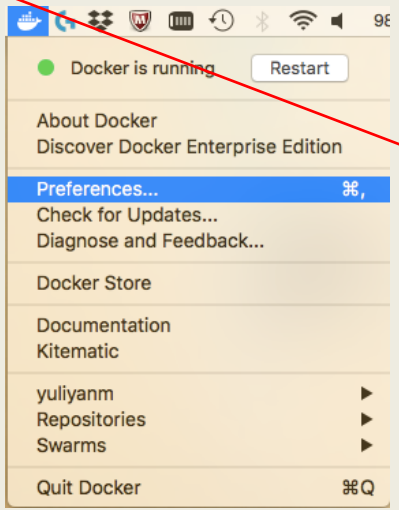
Bonseyes' Docker repository

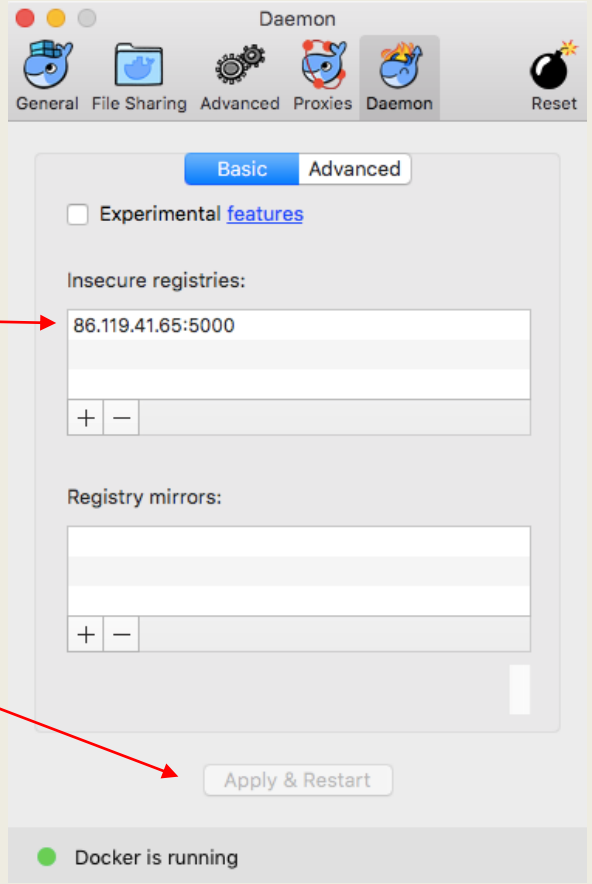
- Two ways to configure the connection to the Bonseyes Docker repository (select 2. if you have a version of Docker without UI)
  1. Via Docker UI
  2. Via editing of Docker deamon.json file

» Pre-requirements for trying out the demo by yourselves
  » Docker installed on your machine (Docker Community edition) https://www.docker.com/get-docker

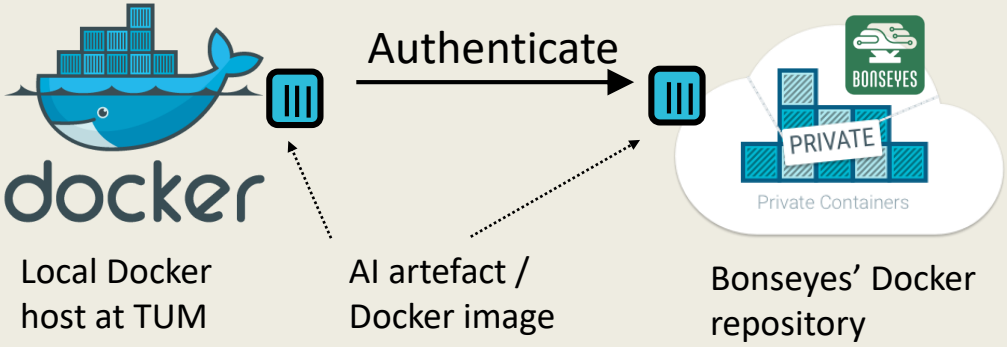
VIA DOCKER UI

- Open Preferences on UI select tab Deamon and add 86.119.41.65:5000 in insecure registries, then apply and restart.



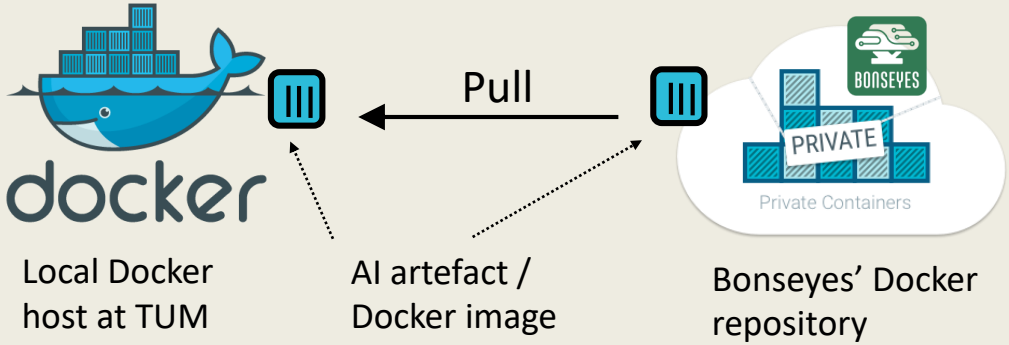


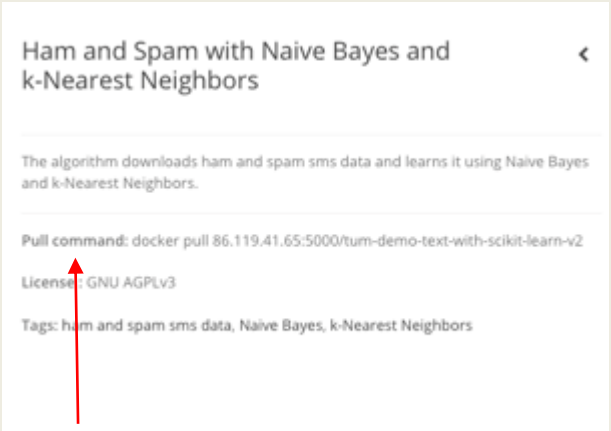
AUTHENTICATE TOWARDS REPOSITORY



- To authenticate open a Shell and type
  - docker login 86.119.41.65:5000
    - User: ai4drones
    - Pass: ai4drones2018

TRANSFER OF ARTEFACT





- To Pull open a Shell and
  - Copy the command from the description of the artefact on the Bonseyes MP UI and paste it into the Shell
  - E.g.
    docker pull 86.119.41.65:5000/tum-demo-text-with-scikit-learn-v5

START ARTEFACT

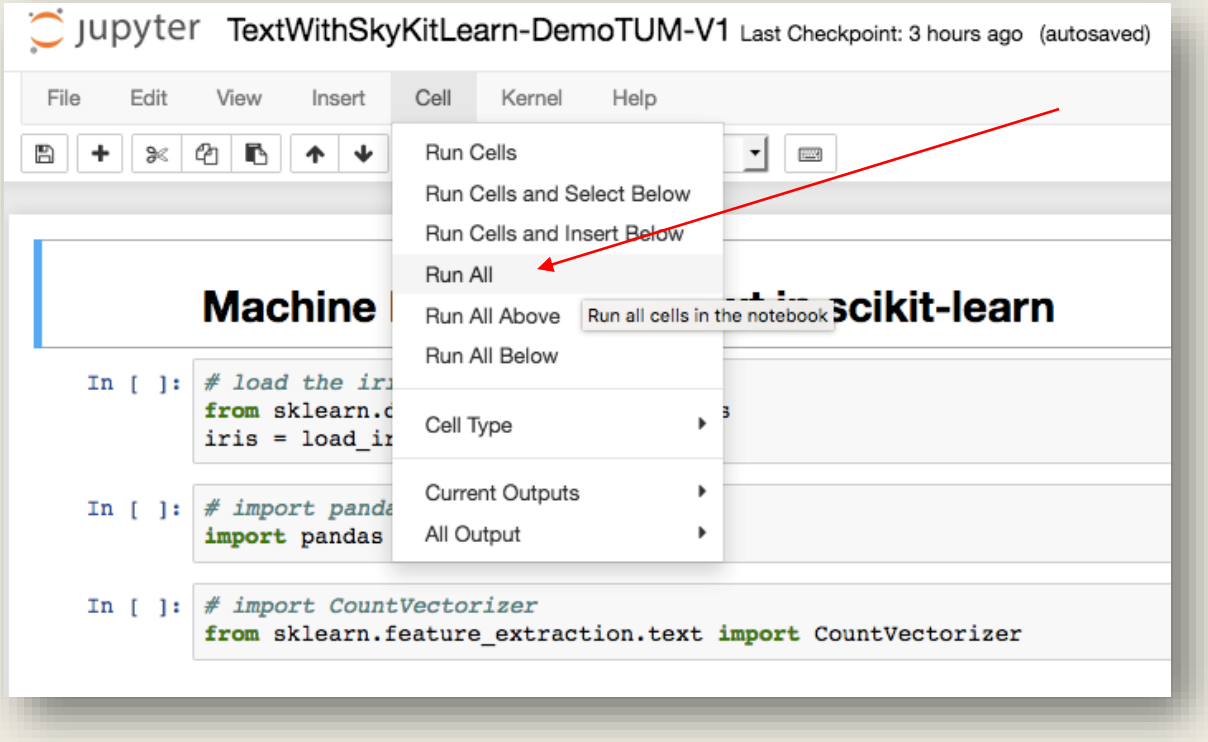
- Open Shell and type e.g. (depends on the artefact)
  - docker run -it -p 8888:8888 --name mlp_version 86.119.41.65:5000/tum-demo-text-with-scikit-learn-v5
  - Copy paste URL in your browser

```
Copy/paste this URL into your browser when you connect for the first time,
to login with a token:
    http://localhost:8888/?token=231ab148fa61be8e820fb10a07e3b780cbeed70c338e4e5c
```

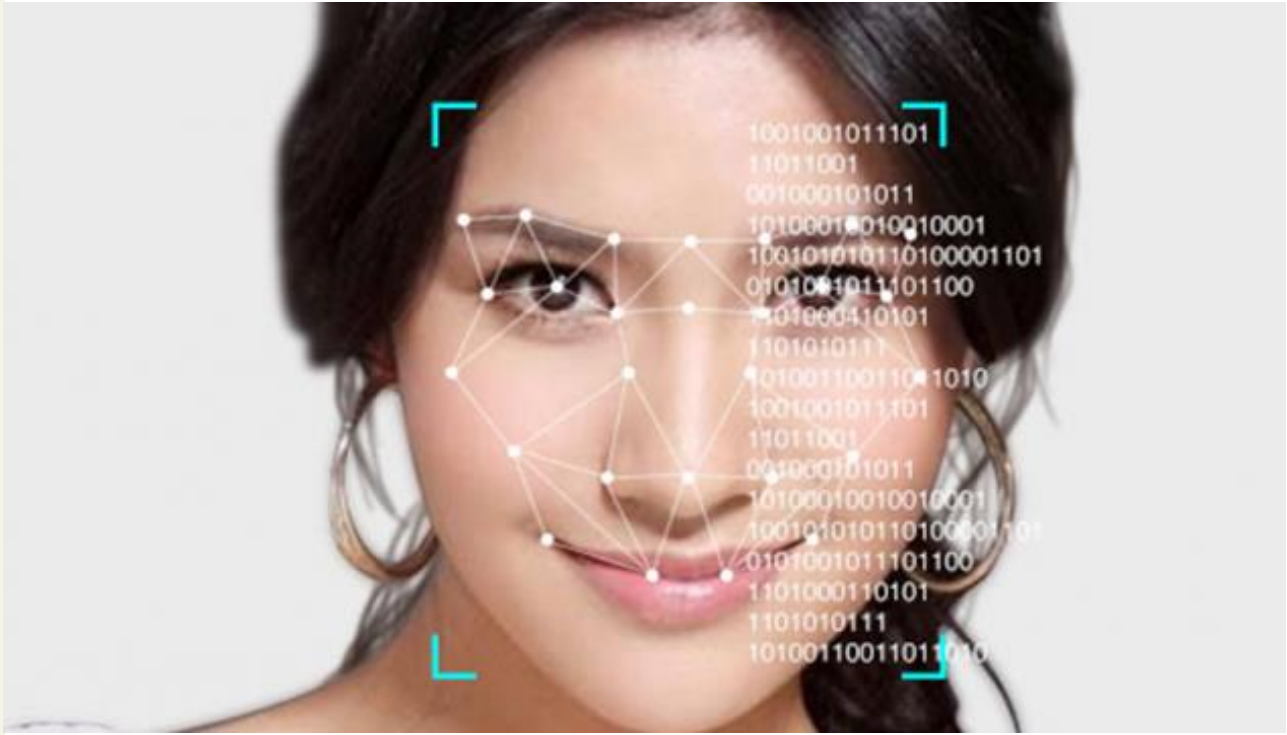
WORK WITH ARTEFACT

- Click here

WORK WITH ARTEFACT



Face Recognition



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GET INFERENCE ARTEFACT

- Available on the Bonseyes Marketplace
  - `docker run --rm -ti -p 8000:8000 86.119.41.65:5000/face_inference bash`

    `cd resnet50`

    `./http_worker_resnet50_cvgj_deploy -w lpdnn_model.h5 -s IPADDR -p 8000`
  - Where IPADDR is the internal ip address of the container (usually 172.17.0.2)

GET PYTHON EXAMPLE CODE

- Available on Github
  - `git pull https://github.com/lunactic/face_detection.git`
  - `python demo_hackathon.py --ip_addr IPADDR --ip_port 8000`
  - Where IPADDR is the ip address of the Docker Host

PYTHON EXAMPLE RESULT

```
lunactic@DESKTOP-24ETFFE:/mnt/c/Users/marce/DEV/face_detection$ python demo_hackathon.py --ip_addr 86.119.40.50 --ip_port 8000
Processing...
processing image
processing image
processing image
[0.0000000e+00 1.1920929e-06 4.6849251e-05]
Done!
```

- Cosine Distance between the first image an the others
- Could be used for Clustering etc.

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www.bonseyes.com – info@bonseyes.com

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