

VISION CONTROL



[1]



FH-Prof. Dipl.-Ing. Dr.
Wolfgang Werth

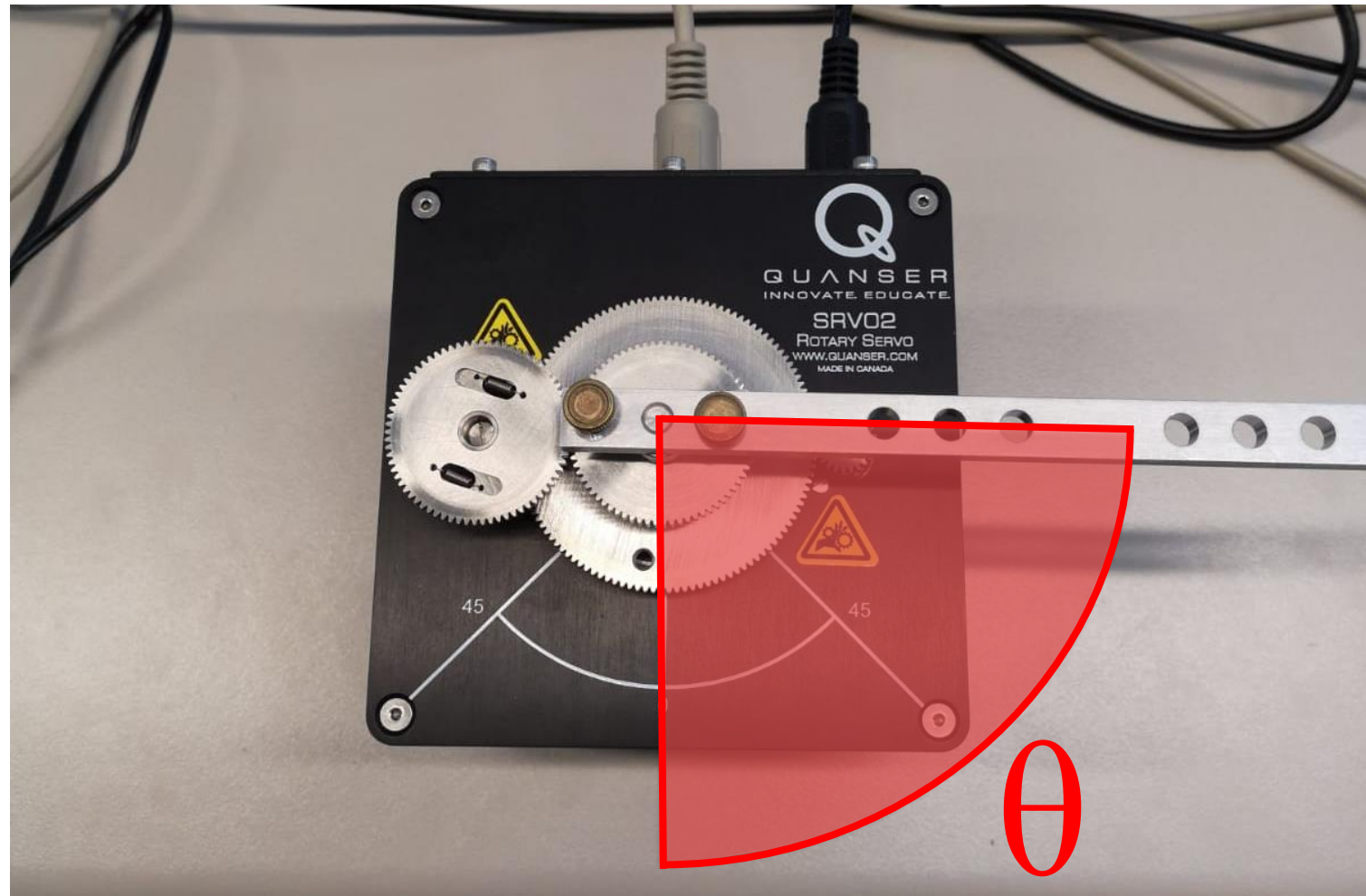
Heinz-Peter
Liechtenecker, BSc
MSc



Gregor Fritz

Laurenz Hundgeburth





Machine Learning 1: Thought Experiment on Abstraction

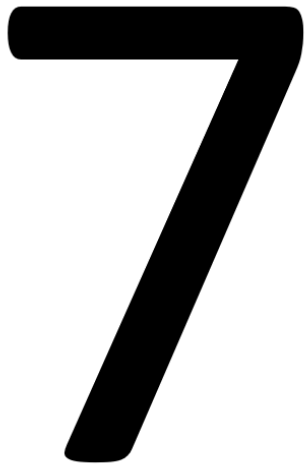


Fig. 1 Seven



Fig. 2 Noisy Seven [2]

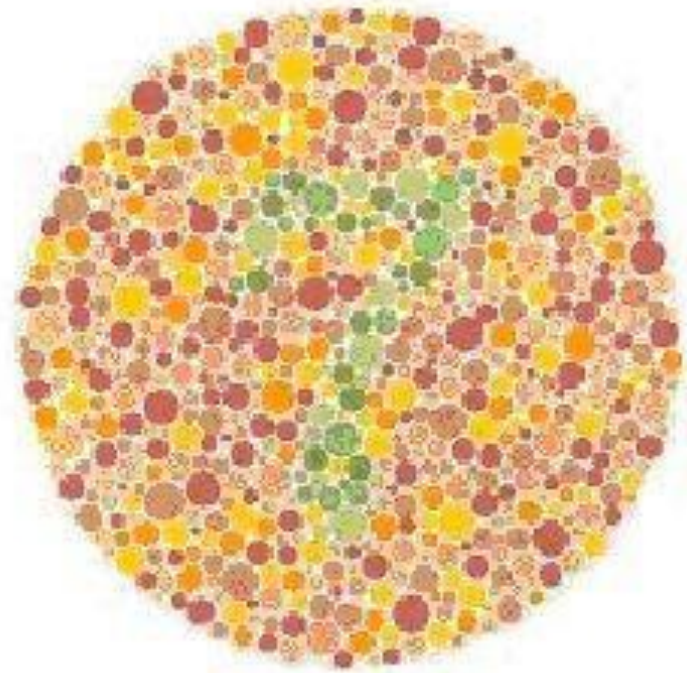


Fig. 3 Abstracted Seven [3]

Machine Learning 2: Supervised Learning

SUPERVISED LEARNING

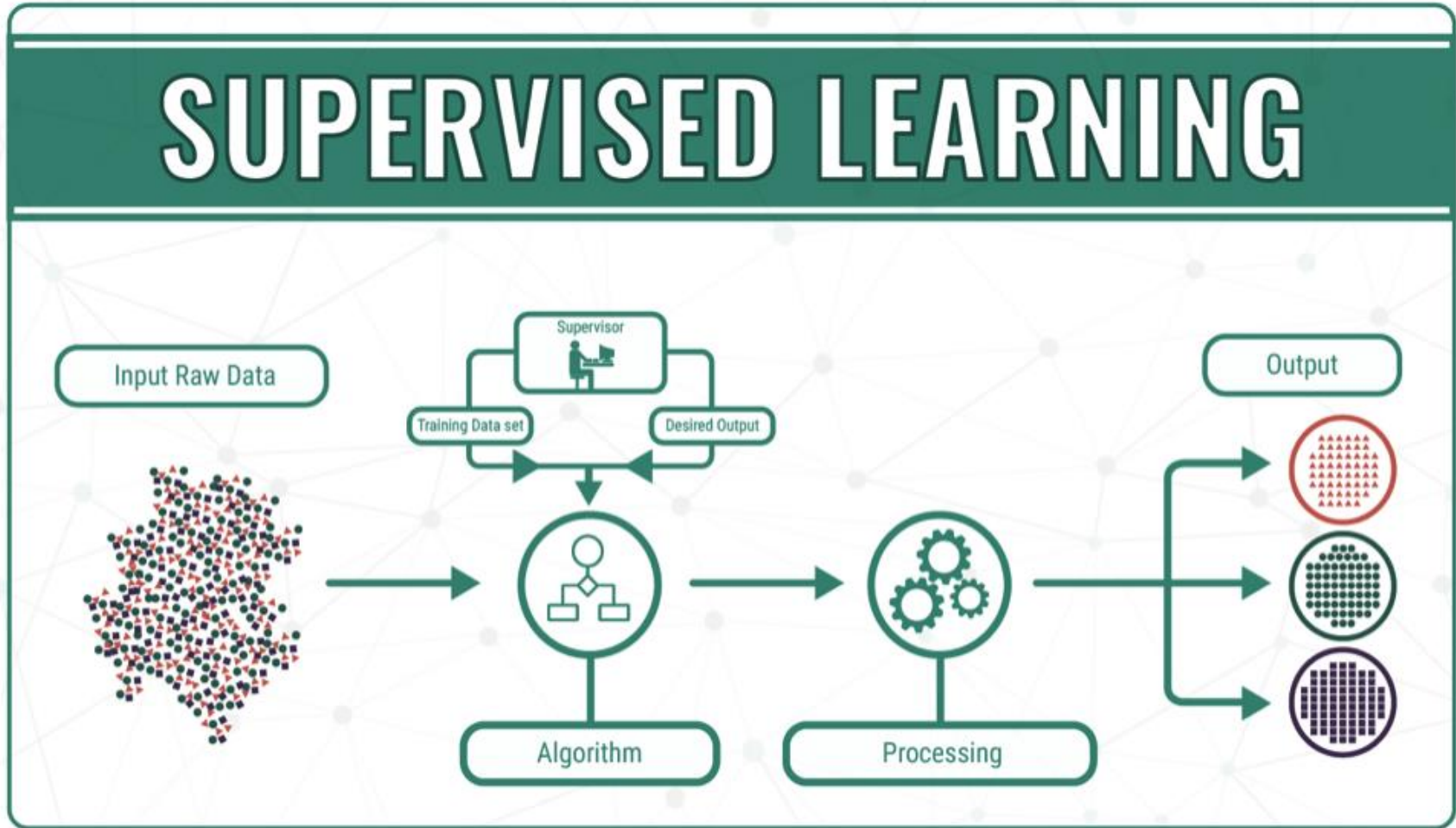


Fig. 4 Supervised Learning[4]

Convolutional Neural Network

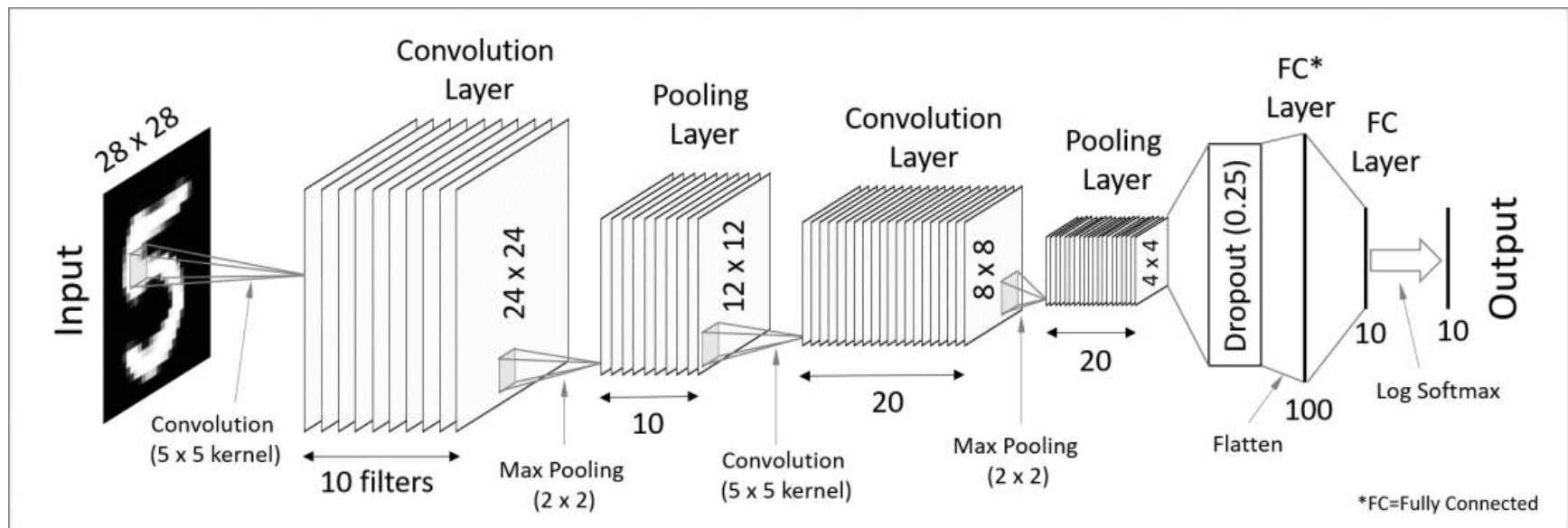


Fig. 5 Convolutional Neural Network [5]

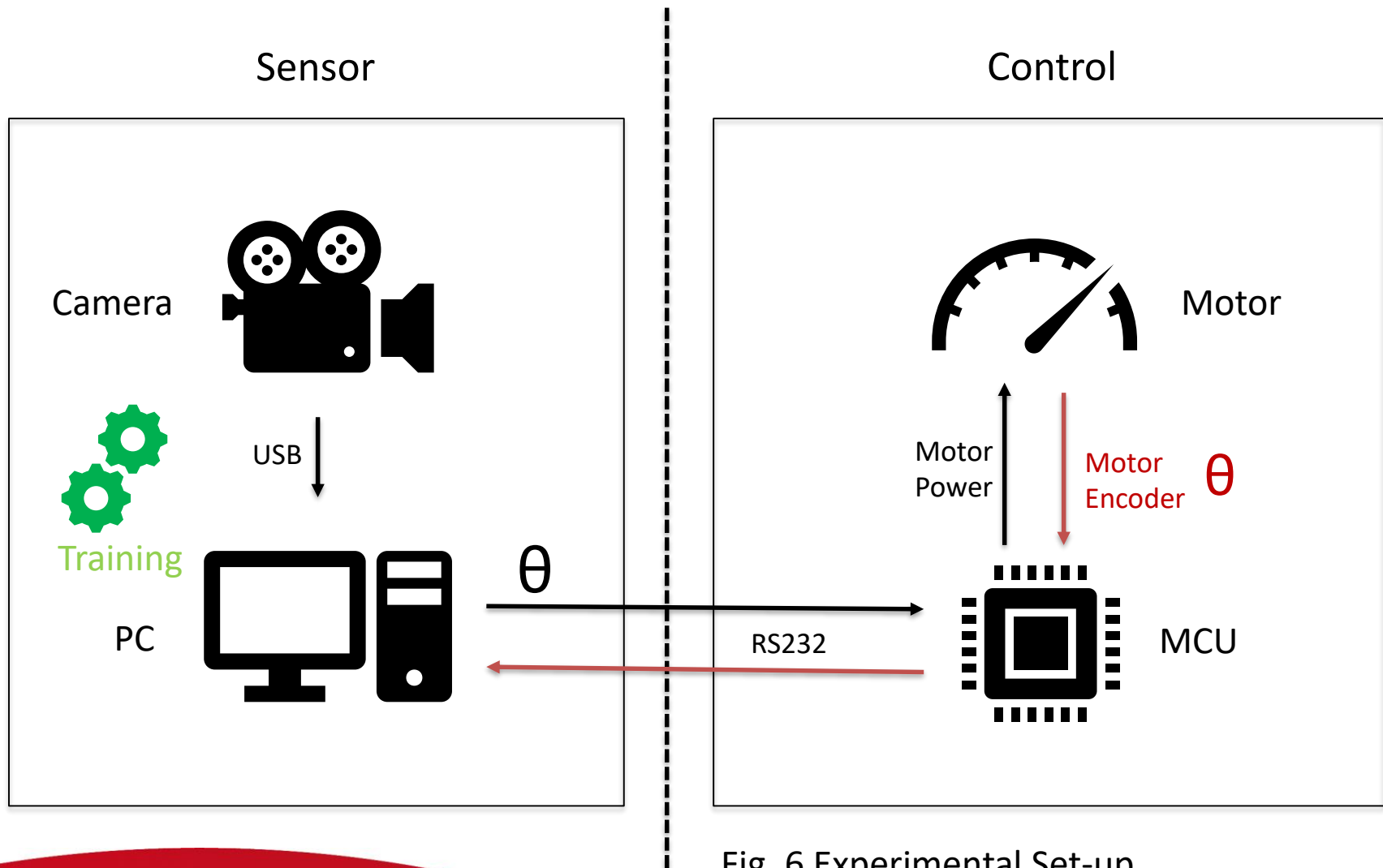
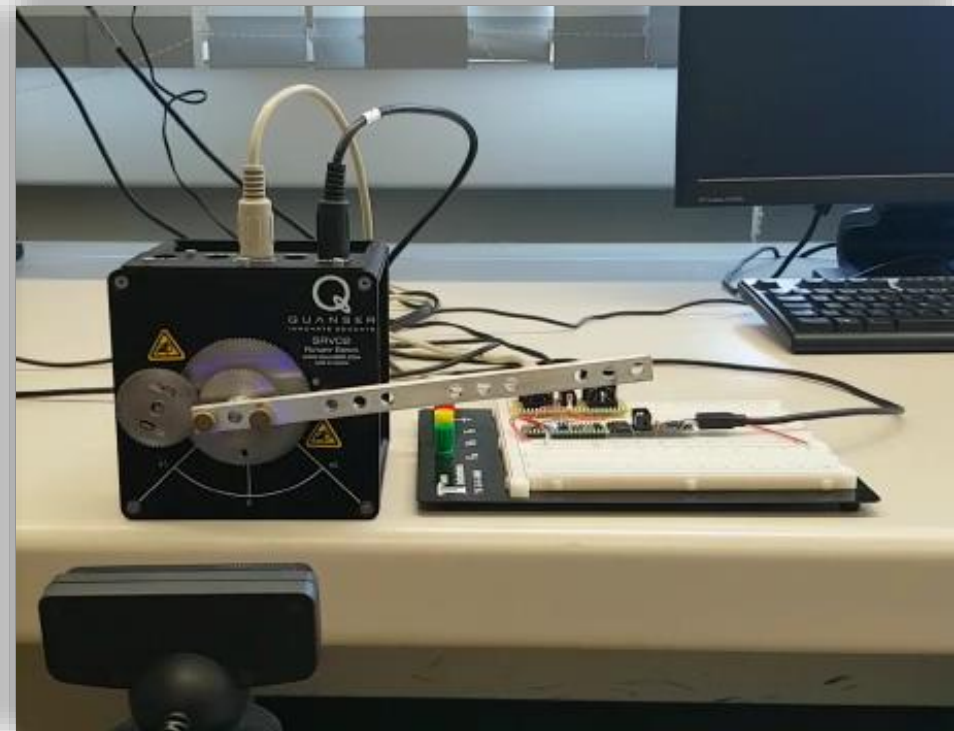


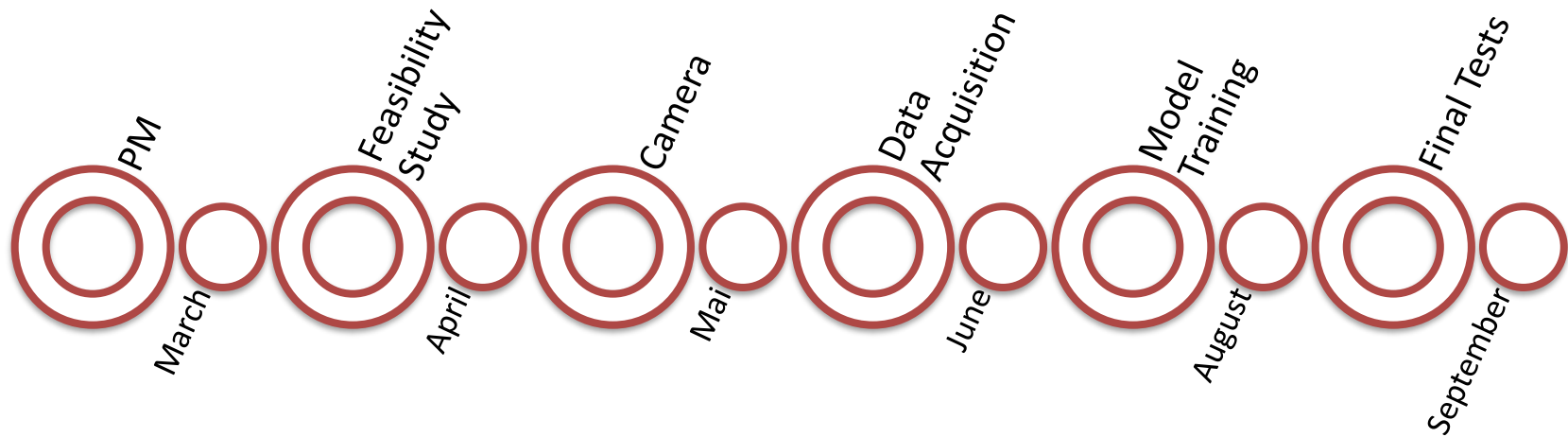
Fig. 6 Experimental Set-up

```
#Starting Data Acquisition - 40 images  
# csv_file_path: ./image_labels_20_6_19  
# img_file_path: ./pictures_20_6_19_v2/  
#####  
Starting Serial Thread...  
Serial Thread running
```



Vid. 1: Fully Automated, Multi-Threaded Image Data-Set Acquisition

PM 1: Timeline

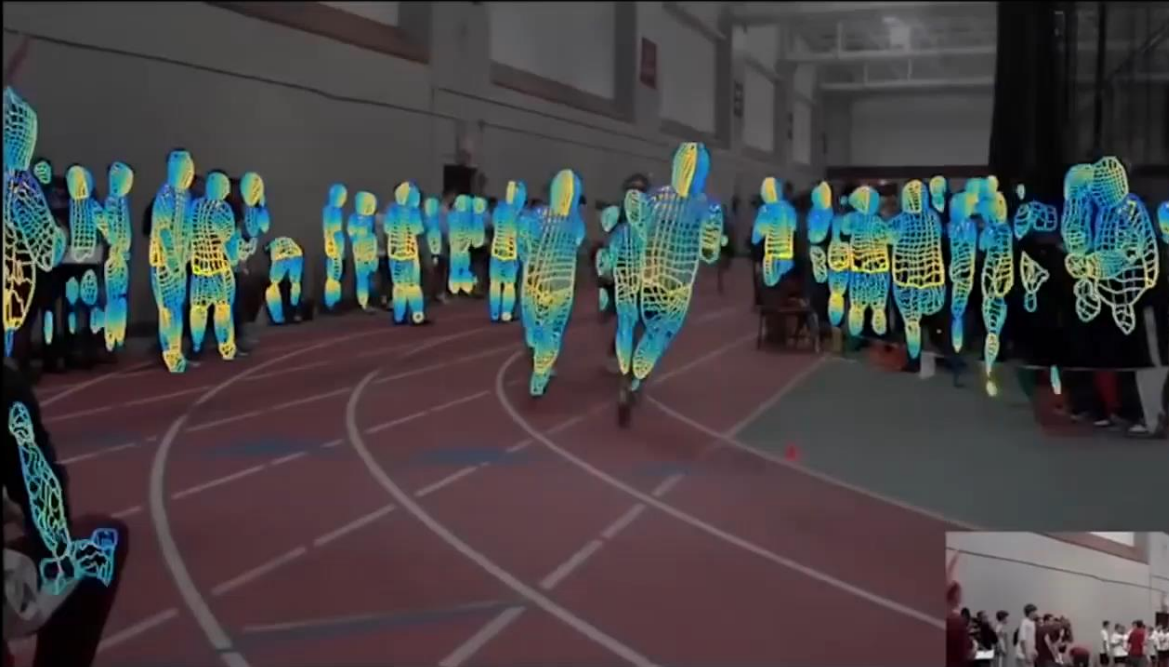


Budget: 1000 €

Items	Amount	Cost
Workhours (so far)	120	😊
USB-Camera	1	0 € (personal)
Tripod	1	0 € (personal)
Camera holder	1	0 € (3d printed)
Laptop	2	0 € (personal)
Microcontroller	1	0 € (FH - intern)
Servo-motor	1	0 € (FH - intern)



Source: [Güler et al. 2018]



Vid. 2: Human Pose Estimation [6]



Thank You!

CARINTHIA
UNIVERSITY
OF APPLIED
SCIENCES



FACHHOCHSCHULE
KÄRNTEN



WWW.FH-KAERNTEN.AT

- [1]: <http://ia-latam.com/2019/01/28/la-ia-se-integrara-en-la-mayoria-de-los-aspectos-de-la-vida-humana/>
- [2]: http://www.marcelhaas.com/index.php/author/marcelhaas_em0ahm/
- [3]: <http://www.uni-koeln.de/~jschween/spiel/farbtafeln/farbtafeln.html>
- [4]: <https://medium.com/@himanshuit3036/supervised-learning-methods-using-python-bb85b8c4e0b7>
- [5]: <https://codetolight.wordpress.com/2017/11/29/getting-started-with-pytorch-for-deep-learning-part-3-neural-network-basics/>
- [6]: <https://www.youtube.com/watch?v=F84jalR5Uxc&t=10s>

