**First meeting:**

Pose estimation:

Papers with code: <https://paperswithcode.com/sota/pose-estimation-on-mpii-human-pose>

MPII dataset: <http://human-pose.mpi-inf.mpg.de/#>

Paper1: <https://arxiv.org/pdf/2002.11098v1.pdf>

Paper2: <https://arxiv.org/ftp/arxiv/papers/1902/1902.07837.pdf>

SqueezeNet: <https://arxiv.org/pdf/1602.07360.pdf>

Knowledge Distillation: <https://arxiv.org/pdf/1906.00619.pdf>

**Second meeting:**

POSE-ESTIMATION with KD: <https://arxiv.org/pdf/1811.05419.pdf>

**Sunday, 28th Feb:**

Human pose estimation towards data science: <https://towardsdatascience.com/human-pose-estimation-simplified-6cfd88542ab3>

**Datasets**:

MPII :

The MPII human pose dataset is a multi-person 2D Pose Estimation dataset comprising nearly 500 different human activities, collected from Youtube videos. MPII was the first dataset to contain such a diverse range of poses and the first dataset to launch a 2D Pose estimation challenge in 2014.

14 keypoints + 1 BG keypoint

COCO :

The COCO keypoints dataset is a multi-person 2D Pose Estimation dataset with images collected from Flickr. COCO is the largest 2D Pose Estimation dataset, to date, and is considering a benchmark for testing 2D Pose Estimation algorithms.

19 keypoints

25k images with one person

Using coco for pose estimation: <https://towardsdatascience.com/how-to-analyze-the-coco-dataset-for-pose-estimation-7296e2ffb12e>

FLICK:

Stills from hollywood movies

10 keypoints

5000 images (multiple)

Leeds Sports Pose (LSP)

1000 + 1000 single sports person images with 14 keypoints

<https://dbcollection.readthedocs.io/en/latest/datasets/leeds_sports_pose.html>

LSP- Extended

10000 training images annotated using opensource (not best quality annotations)

<https://dbcollection.readthedocs.io/en/latest/datasets/leeds_sports_pose_extended.html>

**Papers**:

Review paper 2020: <https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9144178>

Convolutional Pose Machines: <https://arxiv.org/pdf/1602.00134.pdf>

Stacked Hour Glass machines: <https://arxiv.org/pdf/1603.06937v2.pdf>

[not suitable]Refine: <https://arxiv.org/pdf/1804.07909v1.pdf>

[ideas] [this is multiple people] Alpha Pose: <https://arxiv.org/pdf/1612.00137.pdf>

KD : <https://arxiv.org/pdf/2006.05525.pdf>

**Metrics:**

* Percentage of Correct Parts
* Percentage of Detected Joints
* Percentage of Correct Key point

-Normalized distance

-mAP

-AUC

-PCK

-PCKh is also defined as the **head-normalized probability of the correct keypoint** metric [63]. In PCKh, joint detection is considered correct if the predicted joint location is with a certain thresh- old from the true joint location. But the threshold should be adaptively selected based on the individual's size

Most Used: PCKh, PCK, AUC

<https://www.analyticsvidhya.com/blog/2020/10/how-to-choose-evaluation-metrics-for-classification-model/>

<https://towardsdatascience.com/the-5-classification-evaluation-metrics-you-must-know-aa97784ff226>

<https://www.researchgate.net/figure/PCKh05-PCKh01-and-AUC-metrics-top-of-three-methods-and-model-complexity-bot_tbl4_321241826>

**TA discussion on 1st march:**

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Dataset: Increase/compile dataset from multiple sources or not?

Single person pose estimation or multiple?

Which architecture to be used as the parent network?

Which metric should be used?

Font size of proposal document?

is 2d single person pose estimation good enough?

yes because it is out of directly covered material and complex enough

motivation for pose estimation?

- entertainment applications, tiktok, xbox

- rehabilitation

- better posture

occlusion? removed ok?

yea, mention clearly

can we do knowledge distillation / model compression / encoder comparison for FCNs?

- personally love idea; almost good enough for a new different project

VCL - dont use VCL just use google collab or other cloud VMs

about evaluation metrics.. mAP, and others (just mention which ones you are using; no need to specify targets)

just mention the metric

ProjC1 - Prediction & Report - March 22

ProjF2 - Video Update - Apr 5

ProjC2 - Final Prediction - April 12

ProjC2 - Report & Code - Apr 19

ProjF3 - Final Video - Apr 26

ProjF4 - Final Report - May 7