Object Recognition
Practical Sessions

Meysam Madadi

Date	Theory title	teacher	Practical session
02/22	Presentation and CNN basics	Sergio	CNN basics I
03/01	Backbone architectures	Meysam	CNN basics II
03/08/2022	Recurrent architectures	Sergio	CNN advanced architectures
03/15/2022	Object detection and segmentation	Meysam	Object detection I
03/22/2022	Human pose estimation	Meysam	Object detection II
03/29/2022	Human behaviour	Sergio	Human pose I
04/05/2022	Exams week (31/03 - 06/04)	-	-
04/12/2022	Easter holidays (11/04 - 18/04)	-	-
04/19/2022	Presentation I	Sergio	-
04/26/2022	Transformers	Meysam	Human pose II
05/03/2022	Graph neural networks	Meysam	Object recognition
05/10/2022	Master seminar (09/05 - 13/05)	-	-
05/17/2022	Presentation II	Sergio	-
05/24/2022	Exam		

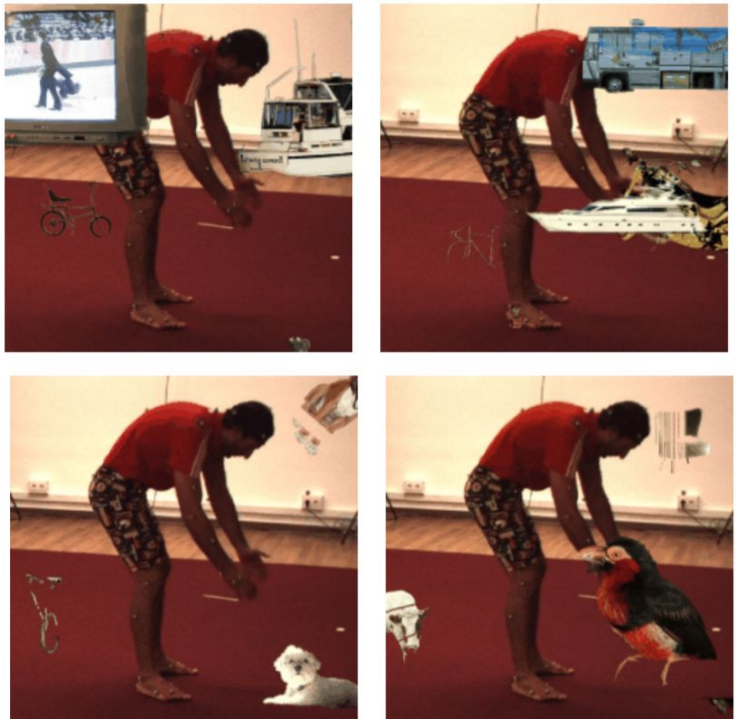
8 sessions
3 blocks

Deliverables

1. Contextual data augmentation, deadline 14/03/2022 23:59
2. Fashion parsing (segmentation), deadline 18/04/2022 23:59
3. Body and clothes depth estimation, deadline 29/05/2022 23:59

Contextual data augmentation

1. Select one of the networks studied in the class,
2. Train the network on Pascal VOC dataset for multi-label classification,
3. During the training corrupt the training images with contextual data augmentation,
    a. Select random objects and put them on random locations in the training image.
4. Study the results. What happens if
    a. No contextual data augmentation is applied,
    b. objects overlap vs no overlapping,
    c. objects appear in random scales and orientation,
    d. objects are selected such that the whole dataset is balanced, i.e. the number of labels in the whole dataset is equal,



Contextual data augmentation

- The report and code/s must be uploaded to the virtual campus before the deadline.
- The report must be short. Maximum 2 pages with font size 11.
- The report must at least contain the following information:
  - Which network has been used and why,
  - How the network has been trained: hyperparameters, optimizer, loss, training strategy, etc,
  - A thorough discussion of the results.