

COMPUTER VISION

MEI/1

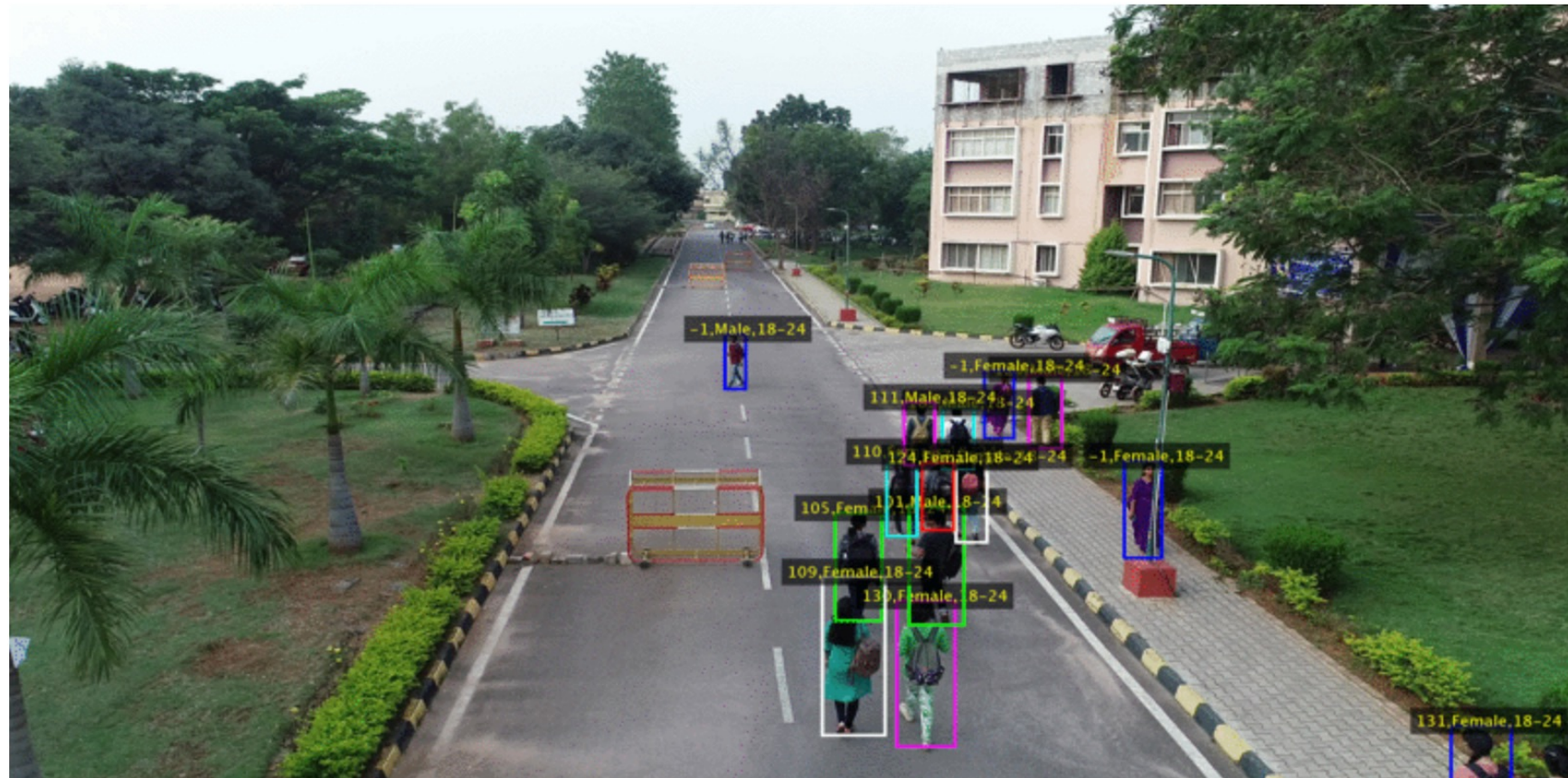
University of Beira Interior, Department of Informatics

Hugo Pedro Proença

hugomcp@di.ubi.pt, 2023/24

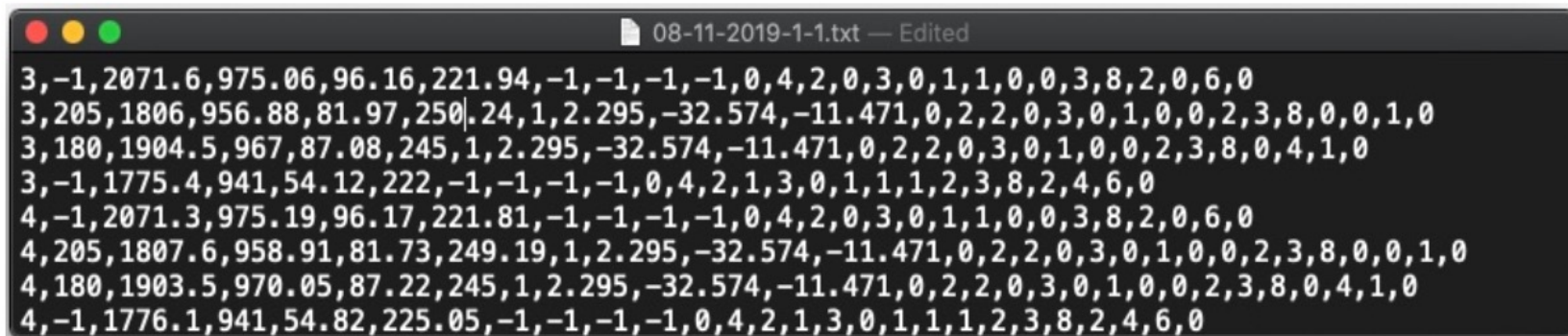
Computer Vision: Hands-on Object Detection

- Consider the P-DESTRE dataset (full version available at: <http://p-destre.di.ubi.pt>), with a set of example videos provided at the course web page.



Computer Vision: Hands-on Object Detection

- The P-DESTRE dataset contains a set of surveillance videos, taken from UAVs of two university campi (Portugal and India).
- The goal is to use this dataset to perceive the effectiveness of SOTA detection, tracking and re-identification methods in this kind of data.
- The P-DESTRE data sets are fully annotated at the frame level, by providing one text file for each video file (with the same name plus the ".txt" extension), as illustrated in the example below:



```
08-11-2019-1-1.txt — Edited
3,-1,2071.6,975.06,96.16,221.94,-1,-1,-1,-1,0,4,2,0,3,0,1,1,0,0,3,8,2,0,6,0
3,205,1806,956.88,81.97,250.24,1,2.295,-32.574,-11.471,0,2,2,0,3,0,1,0,0,2,3,8,0,0,1,0
3,180,1904.5,967,87.08,245,1,2.295,-32.574,-11.471,0,2,2,0,3,0,1,0,0,2,3,8,0,4,1,0
3,-1,1775.4,941,54.12,222,-1,-1,-1,-1,0,4,2,1,3,0,1,1,1,2,3,8,2,4,6,0
4,-1,2071.3,975.19,96.17,221.81,-1,-1,-1,-1,0,4,2,0,3,0,1,1,0,0,3,8,2,0,6,0
4,205,1807.6,958.91,81.73,249.19,1,2.295,-32.574,-11.471,0,2,2,0,3,0,1,0,0,2,3,8,0,0,1,0
4,180,1903.5,970.05,87.22,245,1,2.295,-32.574,-11.471,0,2,2,0,3,0,1,0,0,2,3,8,0,4,1,0
4,-1,1776.1,941,54.82,225.05,-1,-1,-1,-1,0,4,2,1,3,0,1,1,1,2,3,8,2,4,6,0
```

Full description available at:
<http://p-destre.di.ubi.pt/download.html>

Computer Vision: Hands-on Object Detection

- In this Hands-On Project, the idea is to use the set of P-DESTRE example images + the corresponding annotation files, to obtain **human detection** performance estimates, with respect to the soft biometric and environmental annotations available.
 - Run an “Human Detector” model in the P-DESTRE example data.
 - Use the ground truth annotation and compare it to the output given by the model.
 - Obtain the corresponding performance measures (mAP, Precision, Recall)...
 - Compare the effectiveness rates with respect to the soft biometric and environmental annotations
 - E.g., “Is it easier to detect men or women”?