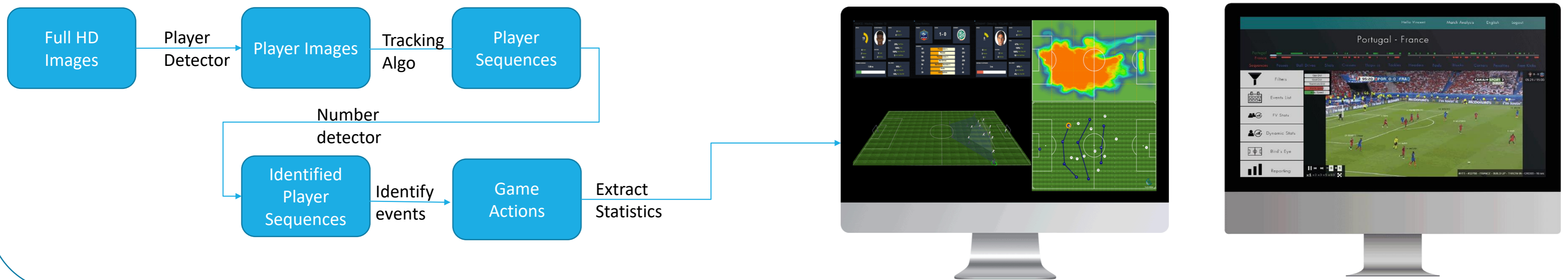


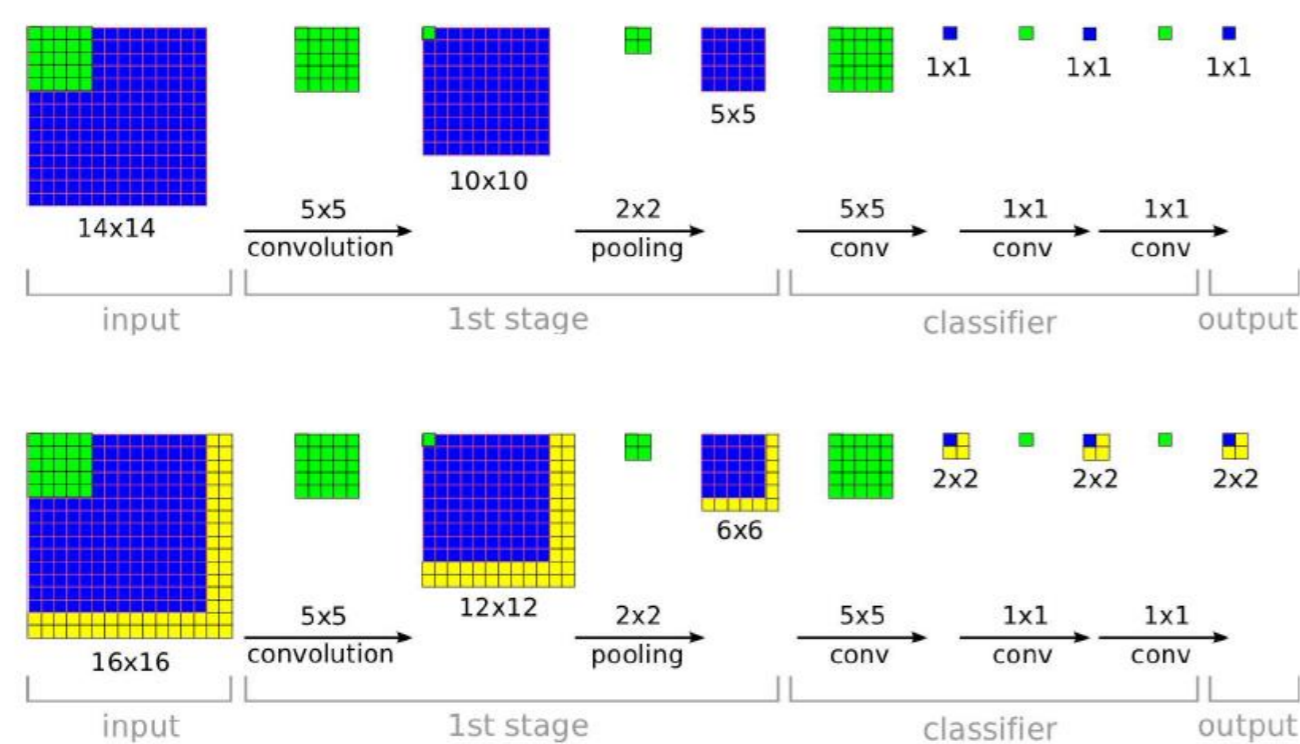
Real-time object detection and tracking in Full HD videos

Adrian Balan – DS3 2018 – adrian.balan@gmail.com

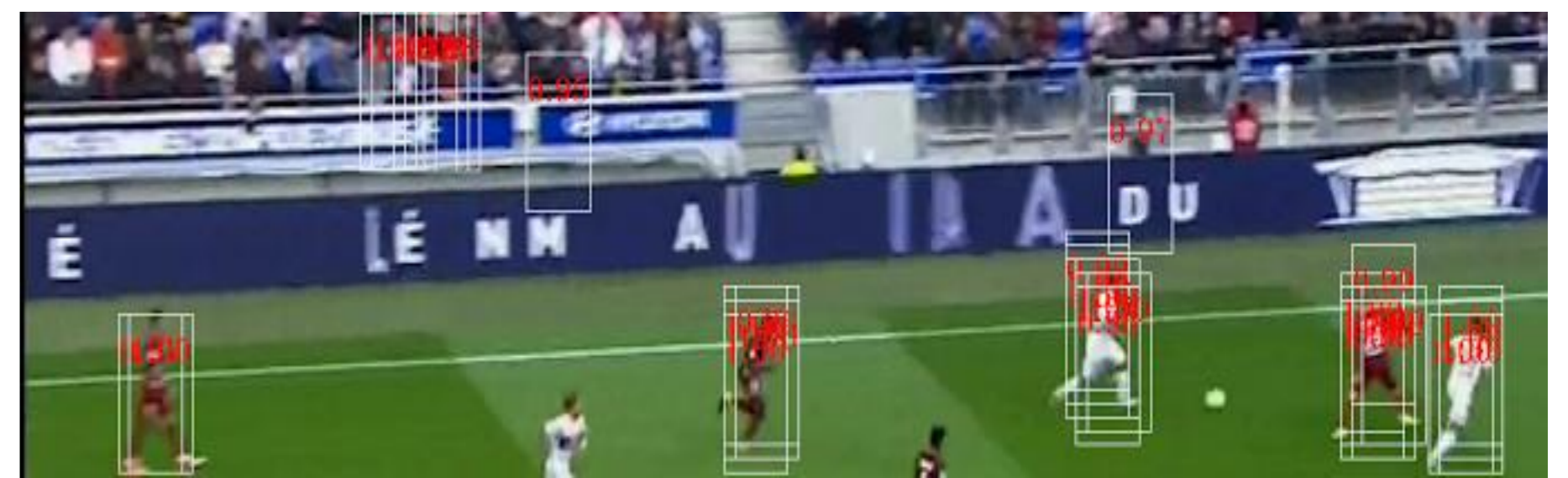
Motivation : Real-time analysis of full HD(1980x1080) images is very slow (500ms/frame in Mask- RCNN)
 Solution : A series of simple, specialized, fast and customized detectors for less than 20ms/frame



Player Detector

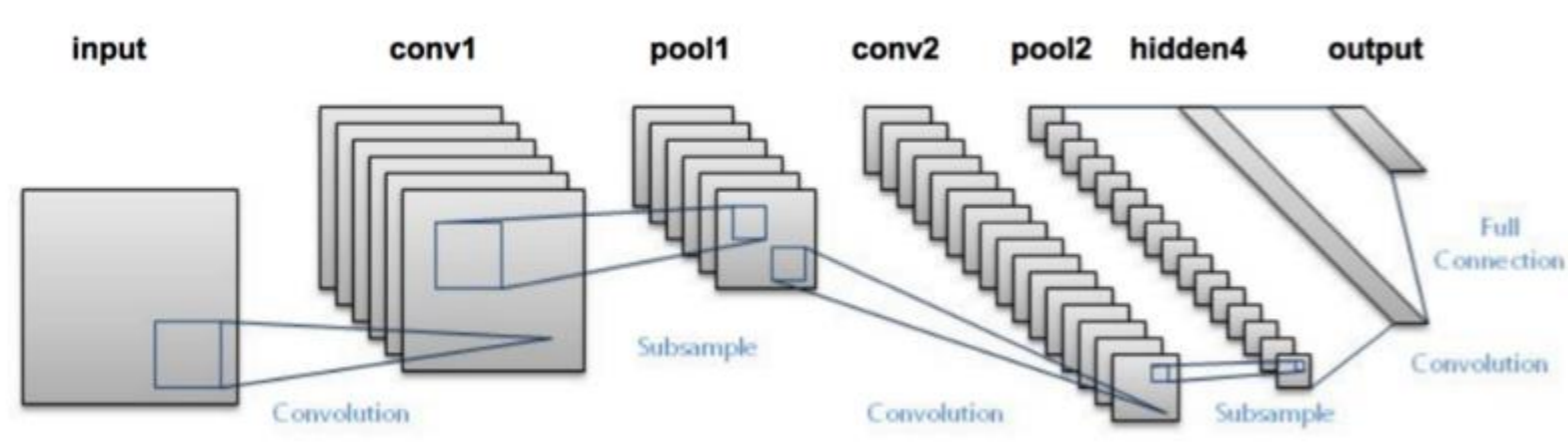


Fully Convolutional implementation of sliding windows [Sermanet, Overfeat]

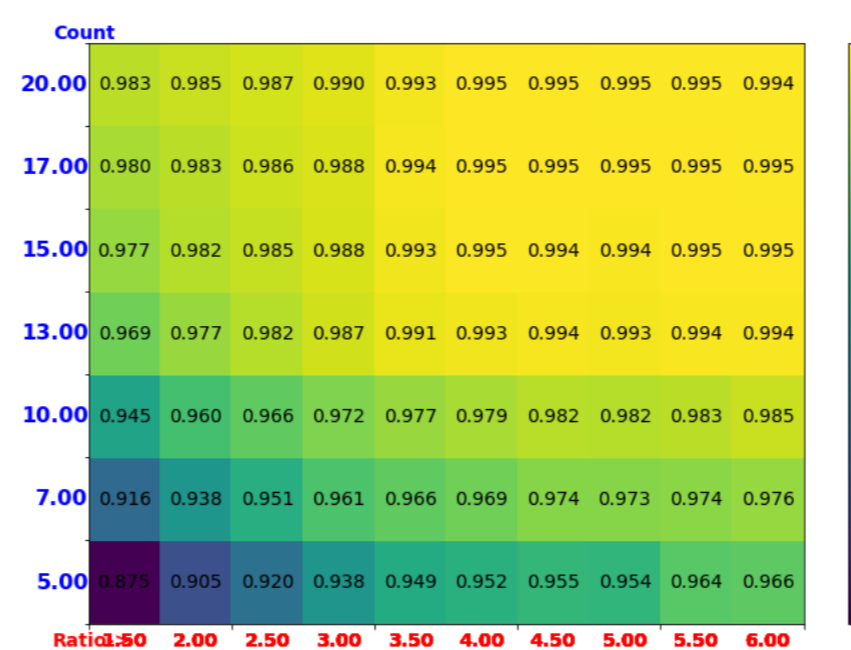


MinMax on obtained predictions

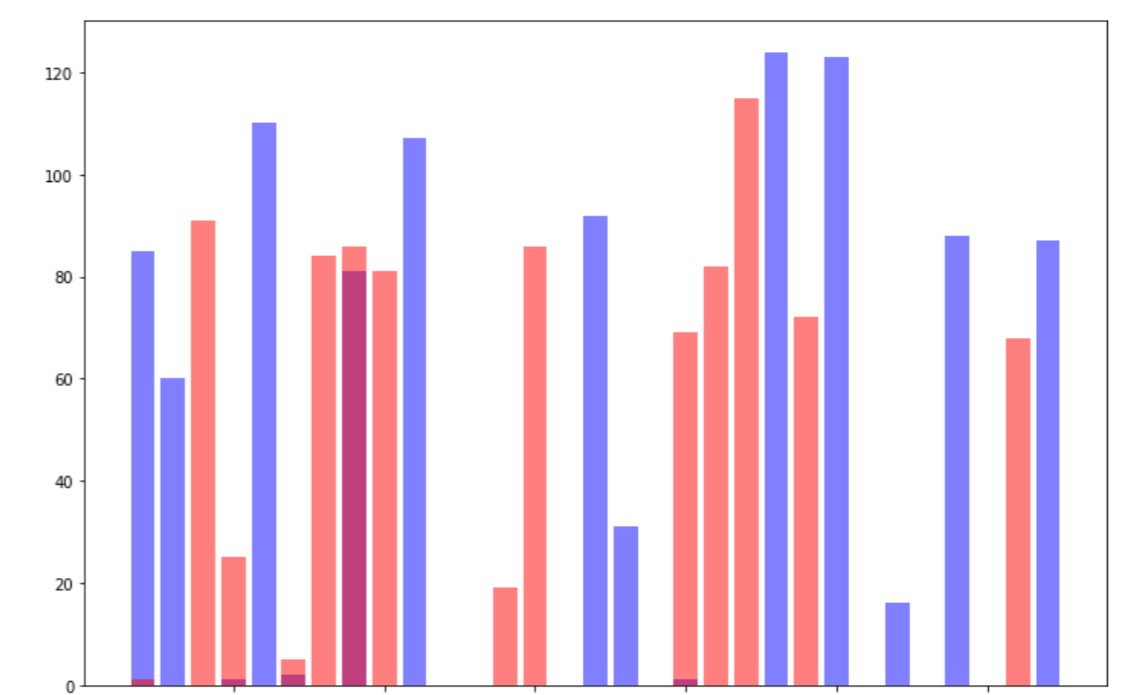
Number Detector



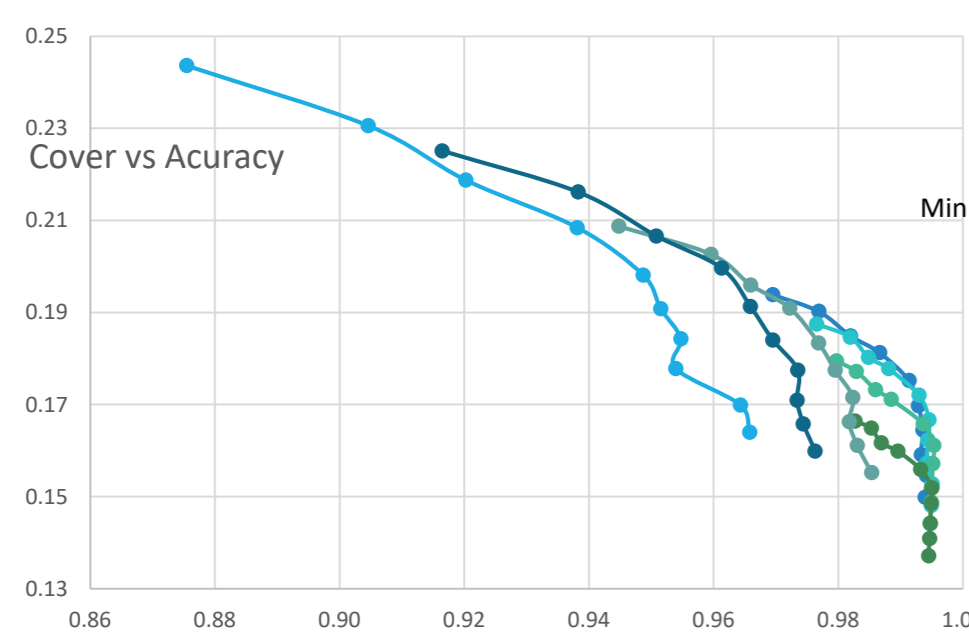
Conv Net Architecture



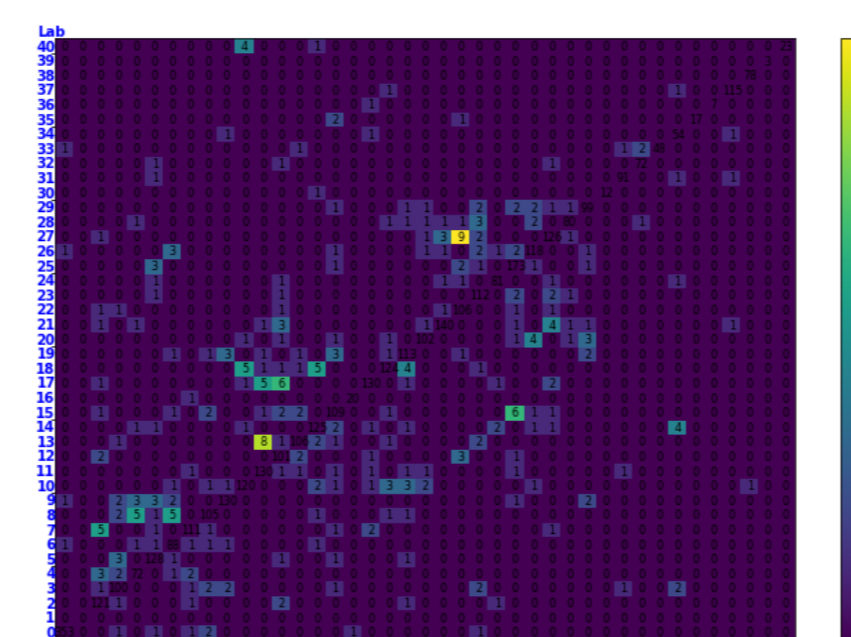
HyperParameter Tuning



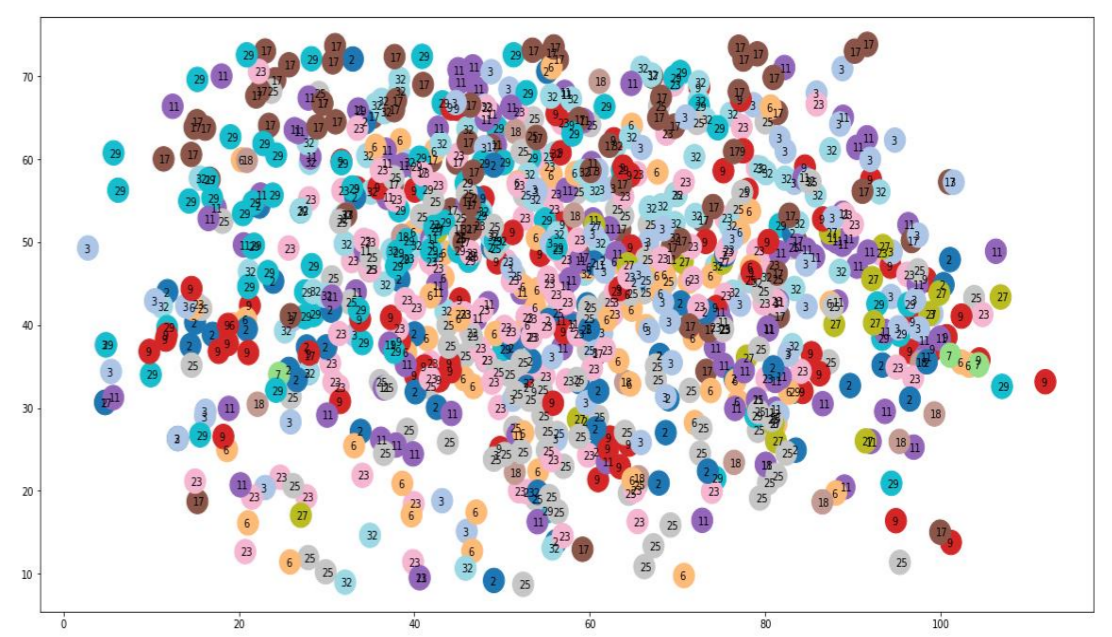
Player Numbers detected / Game



Coverage vs Accuracy for HyperParam FrameCount



Confusion Matrix



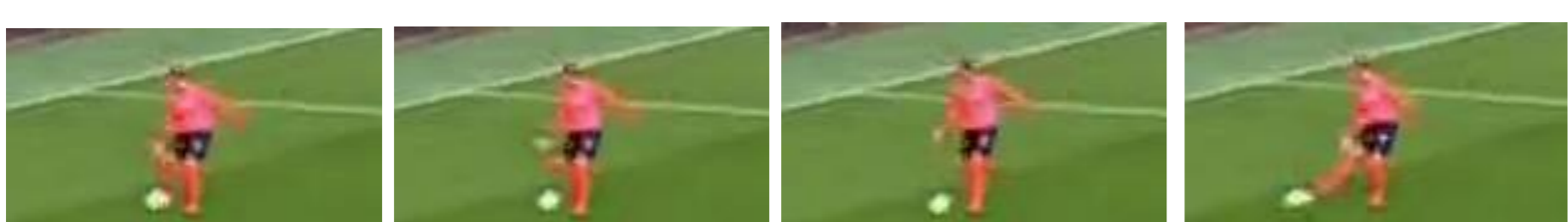
Distribution of Numbers on field

Event Detector

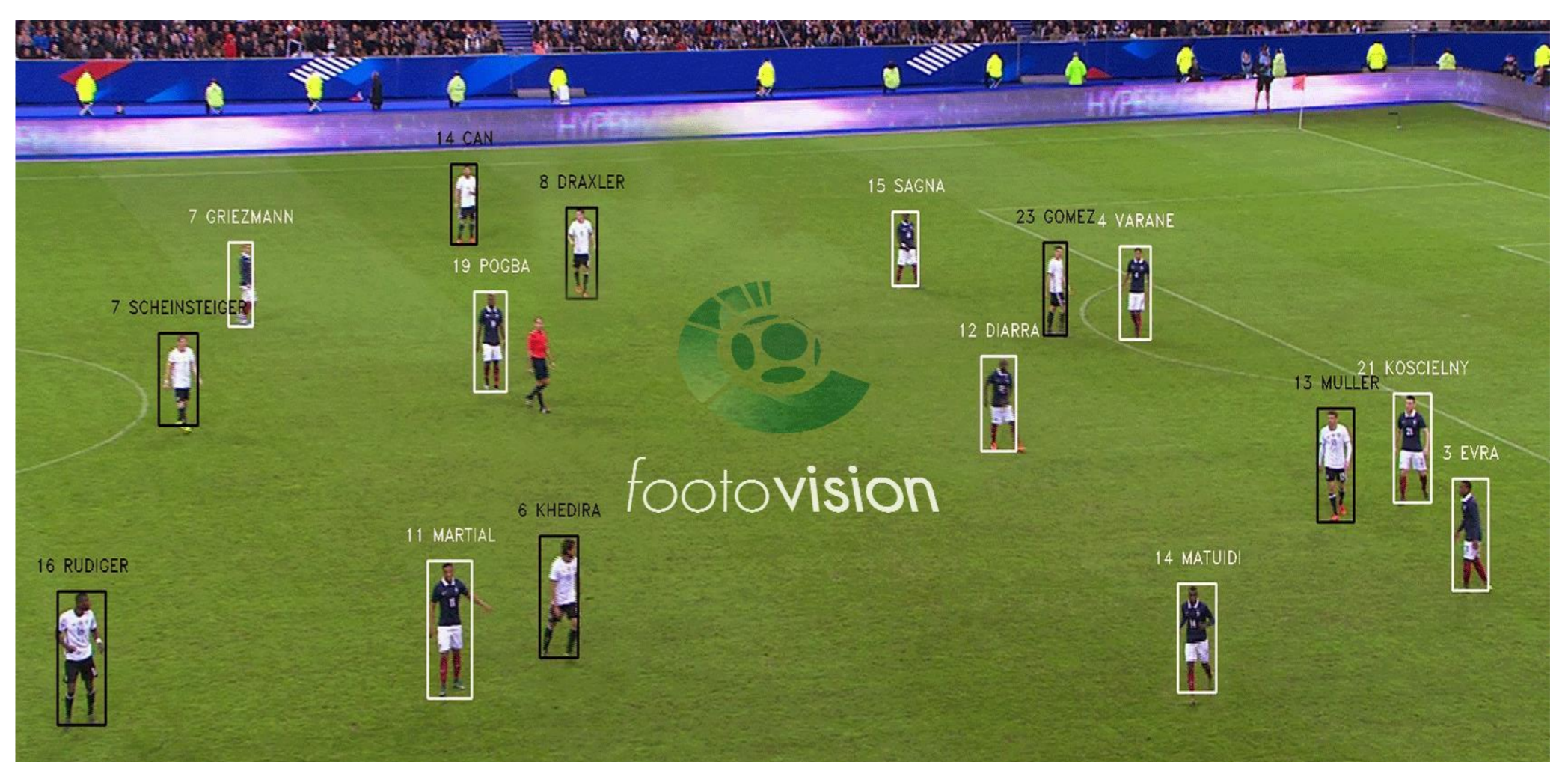
No Ball Sequence



Ball Drive Event



+ Pass Event



Ball Drive events	500 / 530	Pass Events	550 / 600
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