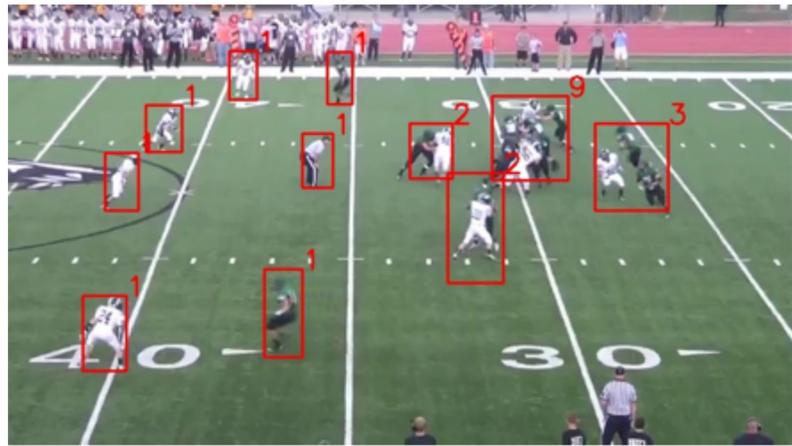


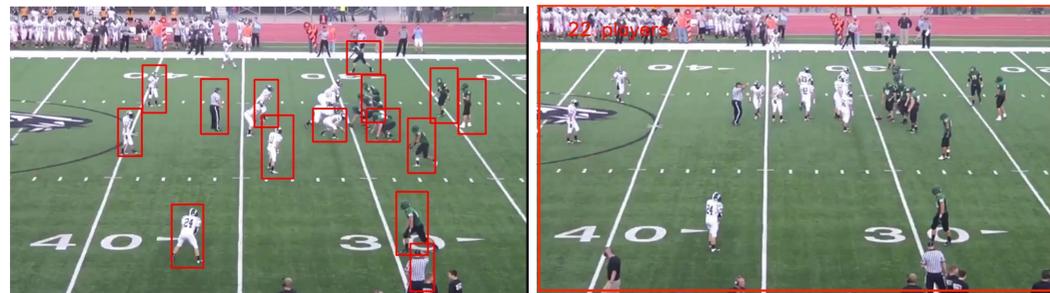
New Problem: Person Count Localization

Given a video, for each frame, output:

1. Detections optimally covering both isolated individuals and crowds of people;
2. Counts of people assigned to each detection.



Motivation

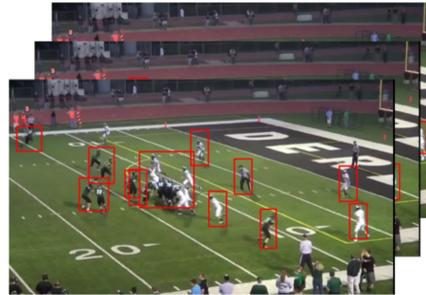


Object detection:
cannot deal with crowds

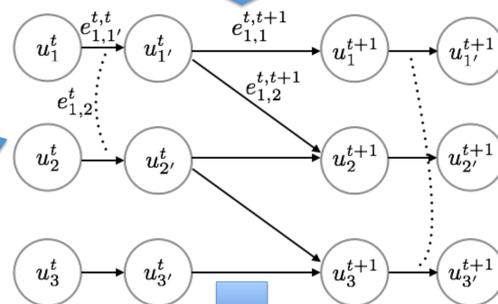
Frame-level counting:
no localization

Our approach localizes and counts crowds

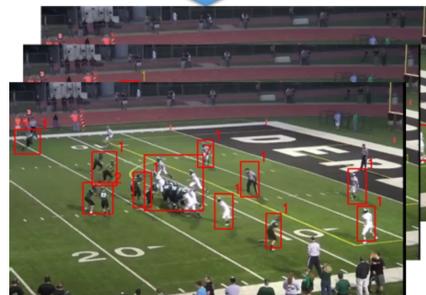
Approach



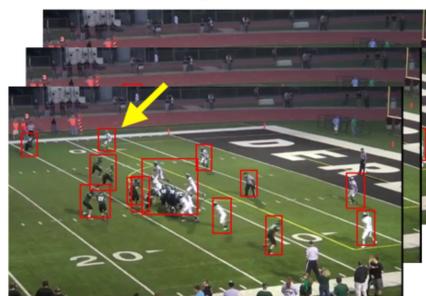
Input: object detection and background subtraction



Flow graph from the input



Integer Program for selecting foreground detections and assigning counts to them



Identify violated integrity constraints and propose ways to fix them

Results



New metric for simultaneously evaluating both count and localization accuracy: count localization accuracy (CLA)

Method	CLA	LA	MC	CE
[1]	0.1205	0.1562	0.23	0.25
Ours (1 st iter)	0.1166	0.1506	0.24	0.34
Ours	0.1551	0.1830	0.04	0.18

Results for American football dataset

LA: Localization accuracy; MC: missing count; CE: count error

[1] M. Schiegg, P. Hanslovsky, B. X. Kausler, L. Hufnagel, and F. A. Hamprecht. Conservation tracking. In *ICCV*, 2013.

Acknowledgment

This work was supported in part by grants NFS IIS 1219258 and NSF RI 1302700.