

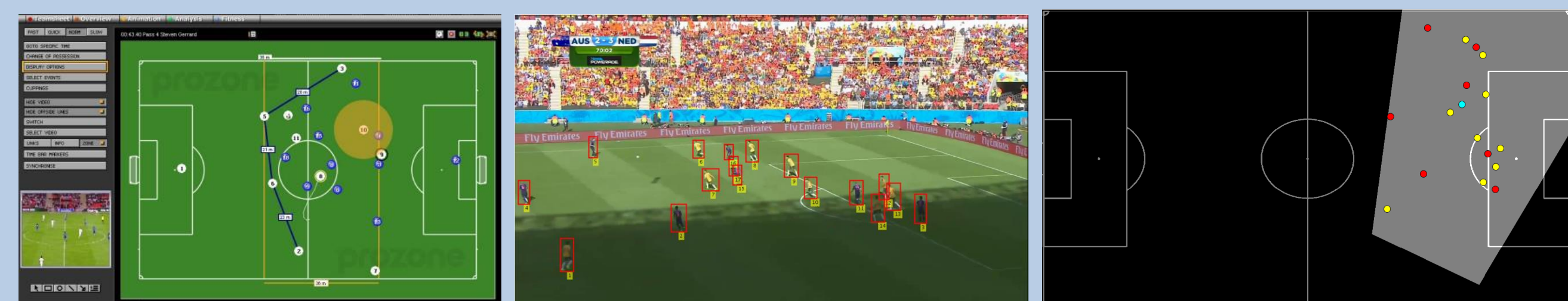
## Problem Statement

- Calculate the projective transformation from field to top view image
- Required to estimate the camera position and location, so that player location can be registered on a global coordinate system

## Challenges

- Viewpoint may not have enough “good” correspondences
- Lighting changes
- to make it fully automatic

## Application

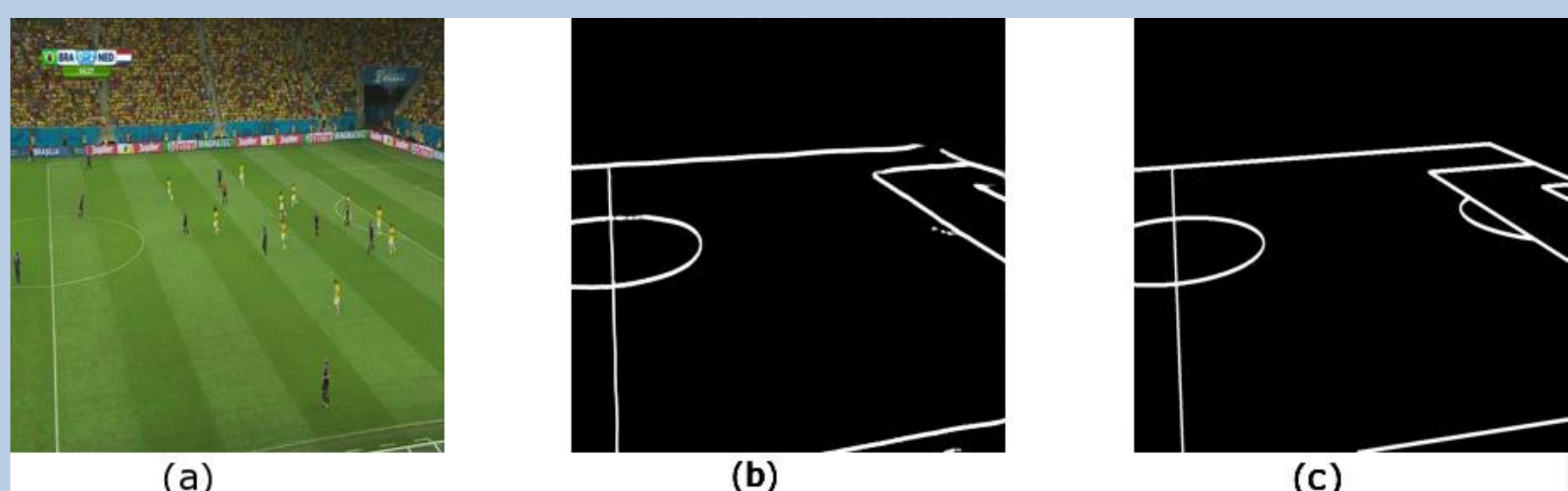


Prozone Tracking System

Example result from our system

## Preprocessing

- We use pix2pix for the preprocessing
- Learns to transform RGB Image to field line image
- End to end training with 200 RGB - field line image pairs



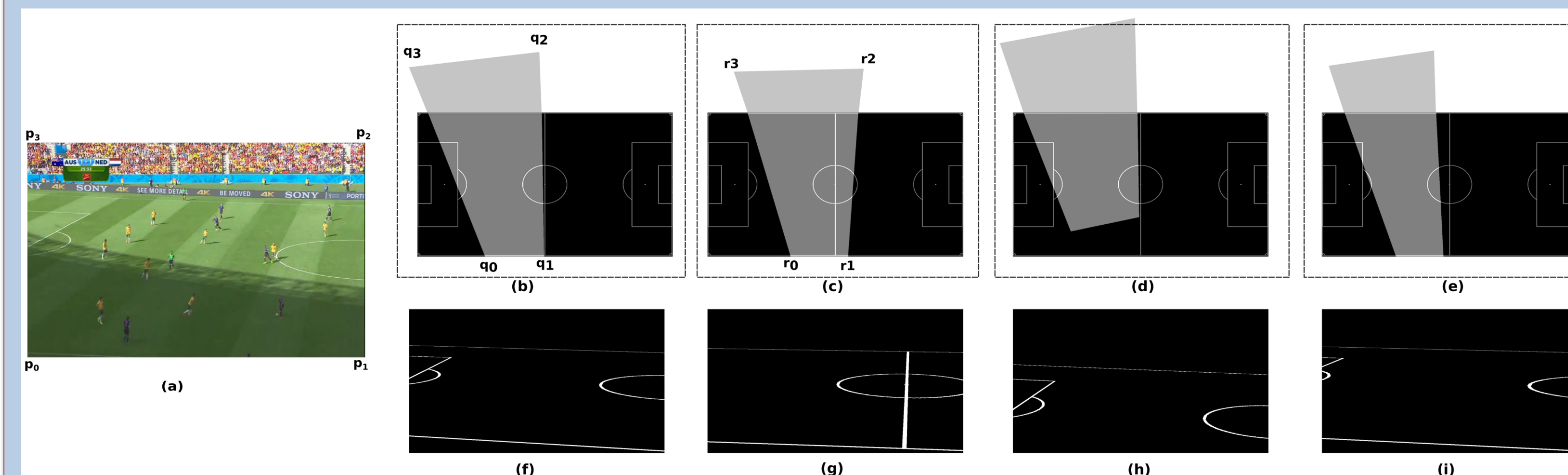
RGB image

Output

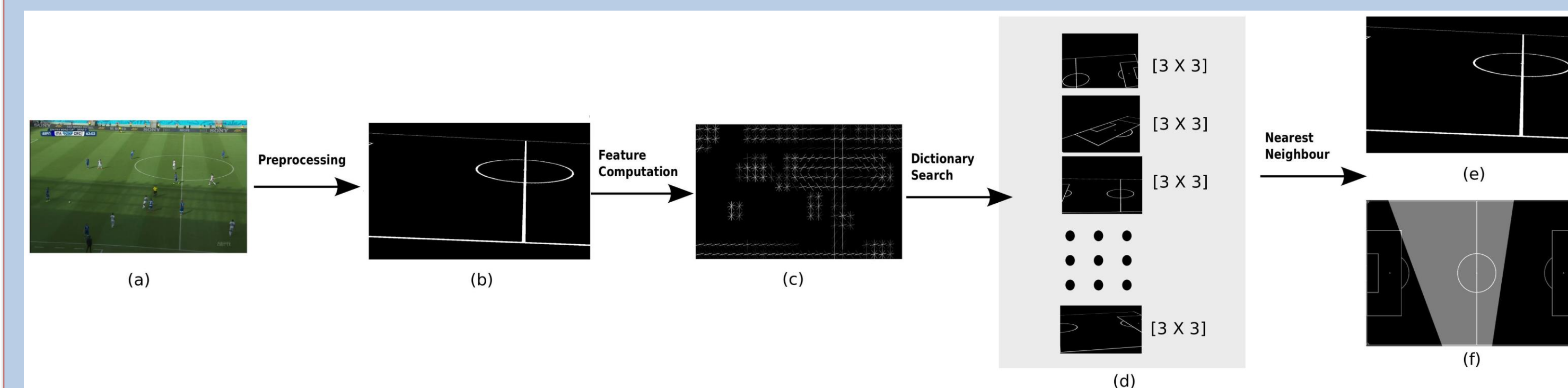
Ground Truth

## Synthetic Dictionary Generation

For each simulated viewpoint, we generate the corresponding HoG feature and store in a dictionary



## Pipeline



## Evaluation

	Mean Accuracy	Time (s)
DSM	83	.44
Ours	91.4	.21

Trained and tested on DSM\* Dataset

	Accuracy	
	Mean	Median
DSM test Data	91.4	92.7
Our test data	76.3	85.6

Trained on DSM Dataset

	Accuracy	
	Mean	Median
DSM test Data	88.8	90.8
Our test data	88.4	90.6

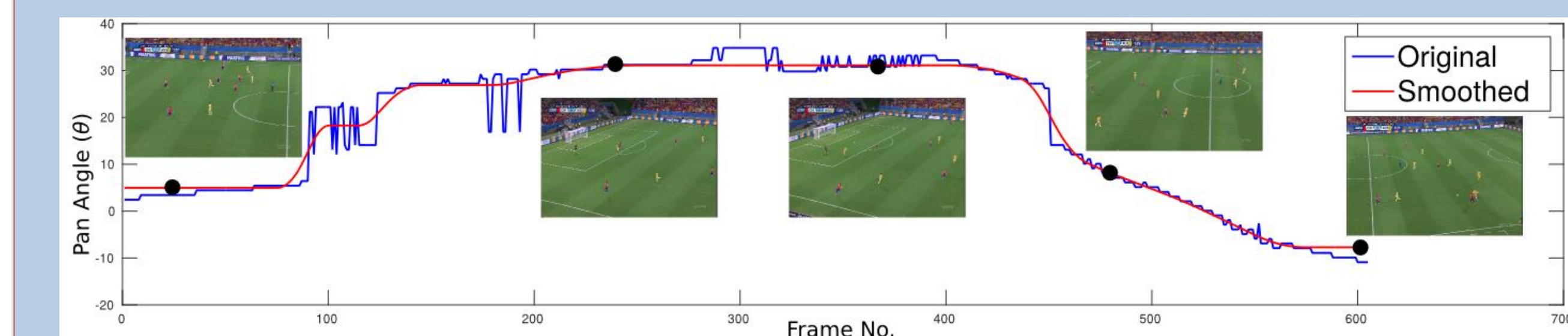
Trained on Our Dataset

\* Homayounfar Namdar, Sanja Fidler & Raquel Urtasun: Sports Field Localization via Deep Structured Models, CVPR 2017

## Evaluation



## Temporal Smoothing



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