

PROBABILISTIC EVENT LOGIC FOR INTERVAL-BASED EVENT RECOGNITION

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GOAL



Recognize and localize *high-level* and primitive activities of each person in videos showing multiple interacting actors; like in basketball

CHALLENGES



Illumination Interactions Occlusion Motion blur

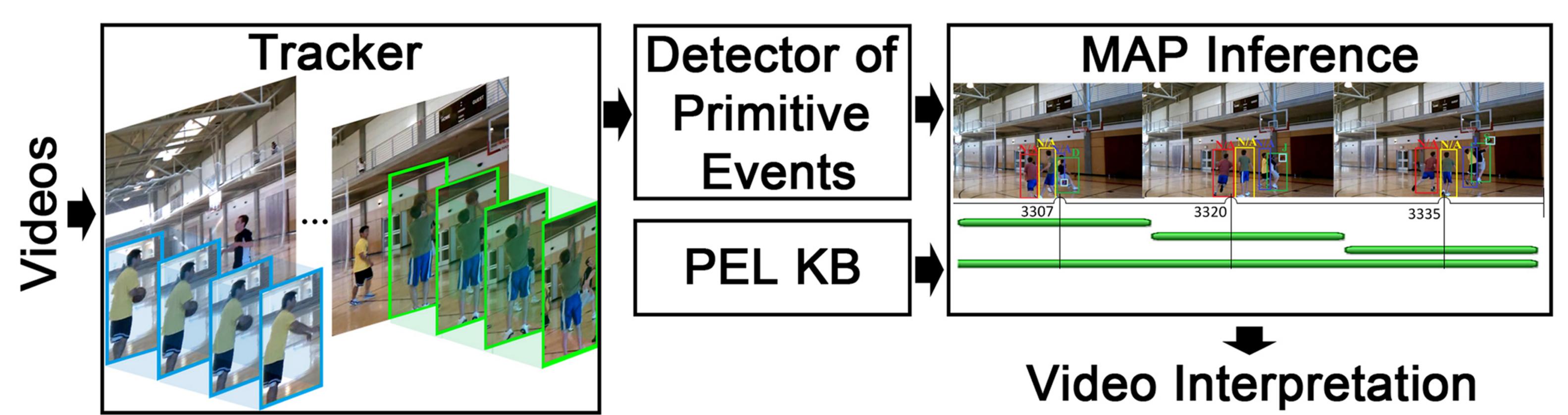
High-level activities cannot be localized based on visual features, e.g., player on offense

Basketball dataset: http://web.engr.oregonstate.edu/~sinisa/

RATIONALE

- ➤ Use hard/soft constraints from domain knowledge to reduce noise in tracking people and detecting primitive activitites
- Avoid enumerating a quadratic number of constraints between all time intervals for localizing activities

OVERVIEW



PROBABILISTIC EVENT LOGIC

0.9 D-Dribbling(x) \rightarrow Dribbling(x) "Detected player x dribbling implies player x dribbling"

1.0 (Dribble(x) \lor Shooting(x) \lor Passing(x)) \to HasBall(x) "A player x dribbling, shooting or passing must have the ball"

0.7 Shooting(x) $\rightarrow \diamondsuit_{mi}$ (Shooting(x) \vee (BallTrajectory; NearRim)) "When a player x shoots, the ball probably goes toward the rim"

