PROBABILISTIC EVENT LOGIC FOR INTERVAL-BASED EVENT RECOGNITION

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GOAL

- Tracking
- Detection
- Probabilistic Event Logic

RATIONALE

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

OVERVIEW

- Tracker
- Detector of Primitive Events
- MAP Inference
- Video Interpretation

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/

PROBABILISTIC EVENT LOGIC

0.9 D-Dribbling(x) → Dribbling(x)
“Detected player x dribbling implies player x dribbling”

1.0 (Dribble(x) ∨ Shooting(x) ∨ Passing(x)) → HasBall(x)
“A player x dribbling, shooting or passing must have the ball”

0.7 Shooting(x) → m.i. (Shooting(x) ∨ (BallTrajectory ; NearRim))
“When a player x shoots, the ball probably goes toward the rim”