Model-Based Tracking

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Architecture of Model-Based Tracker

Verifying Location

Predicting Location

Object State

Scene Data

Updating State

Tracking in General

Can track \{ people, vehicles, animals \} using Kalman filter or condensation tracking

- Need a motion model
- Can learn model, or from calibrated parametric model

\[ \mathbf{x}(t) = \mathbf{s}_0 + t\mathbf{v}_0 + \frac{1}{2}t^2\mathbf{a} \]

But ....

- Still need to know what is being tracked in image
- Easy for bouncing ball scene: contrasting object, plain background
- Hard in real scenes: objects come and go, changes, shadows, moving scene structure (e.g. leaves), occlusions, fast objects