

Path Detection in Video Surveillance

Dimitrios Makris and Tim Ellis

Imran Nazir

Objective

- Automatically extract frequently used pedestrian pathways from video sequences.

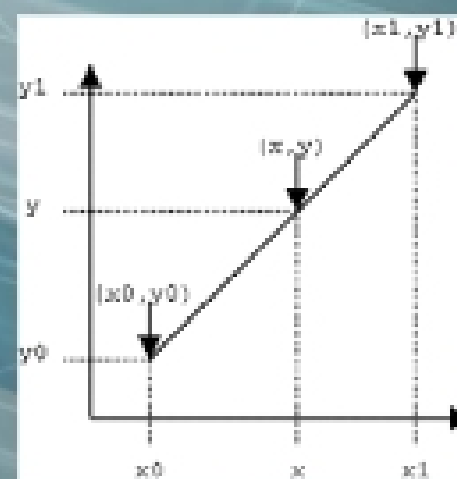
Motivation

- Identifying different paths
- Logging of movement patterns
- Tracking

Definitions

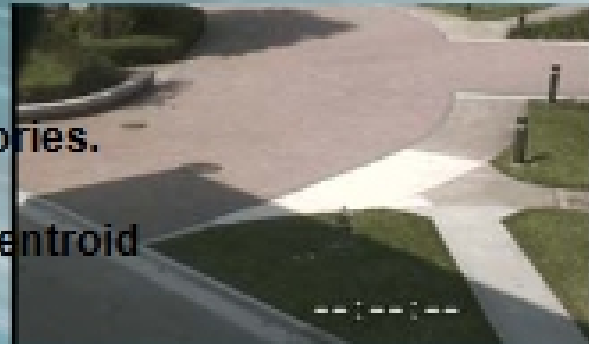
- Route
- Linear Interpolation

$$y = y_1 + \frac{(y_2 - y_1)}{(x_2 - x_1)} * (x - x_1)$$



Scene Model

- Database for all trajectories.
- Trajectory derived by centroid of tracking object.
- Trajectories resampled Linear Interpolation.
- Routes learned from trajectories.



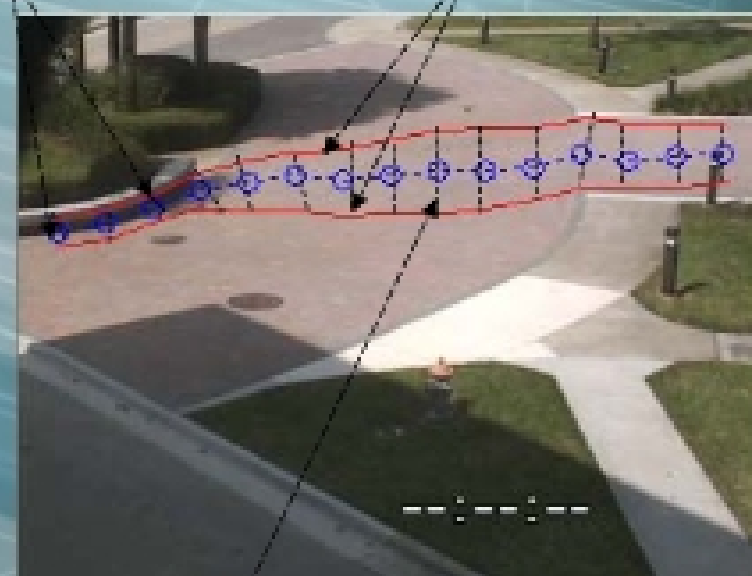
Scene Model

Node represented by

- 2D Image coordinates: $x_i = [x_i, y_i]$
- Weight factor w_i
- Normal Vector
- Boundary of distributions

Nodes

Route Envelope



Direction of Normal Vector