REU Week 10

Scene Motion Patterns from Optical Flow

Lance Hartung
Overview

- Last week:
  - Temporal links

- This week:
  - Ellipse reorientation
    - Addresses the problem of bad links
  - Improved KL divergence
  - Visualizations of results
Ellipse Reorientation

- Narrower in direction perpendicular to flow direction
- Constrains area for link acceptance
Using the New Ellipses

Predicted points are contained within reoriented ellipses
Before and After
Improved KL Divergence

- Previously using a crude approximation
  - Closed form for single Gaussians
  - Pairwise comparison
- Monte Carlo sampling
  - Accurate method for Gaussian mixtures
Motion Pattern Visualization
Motion Pattern Visualization