

REU Week 10

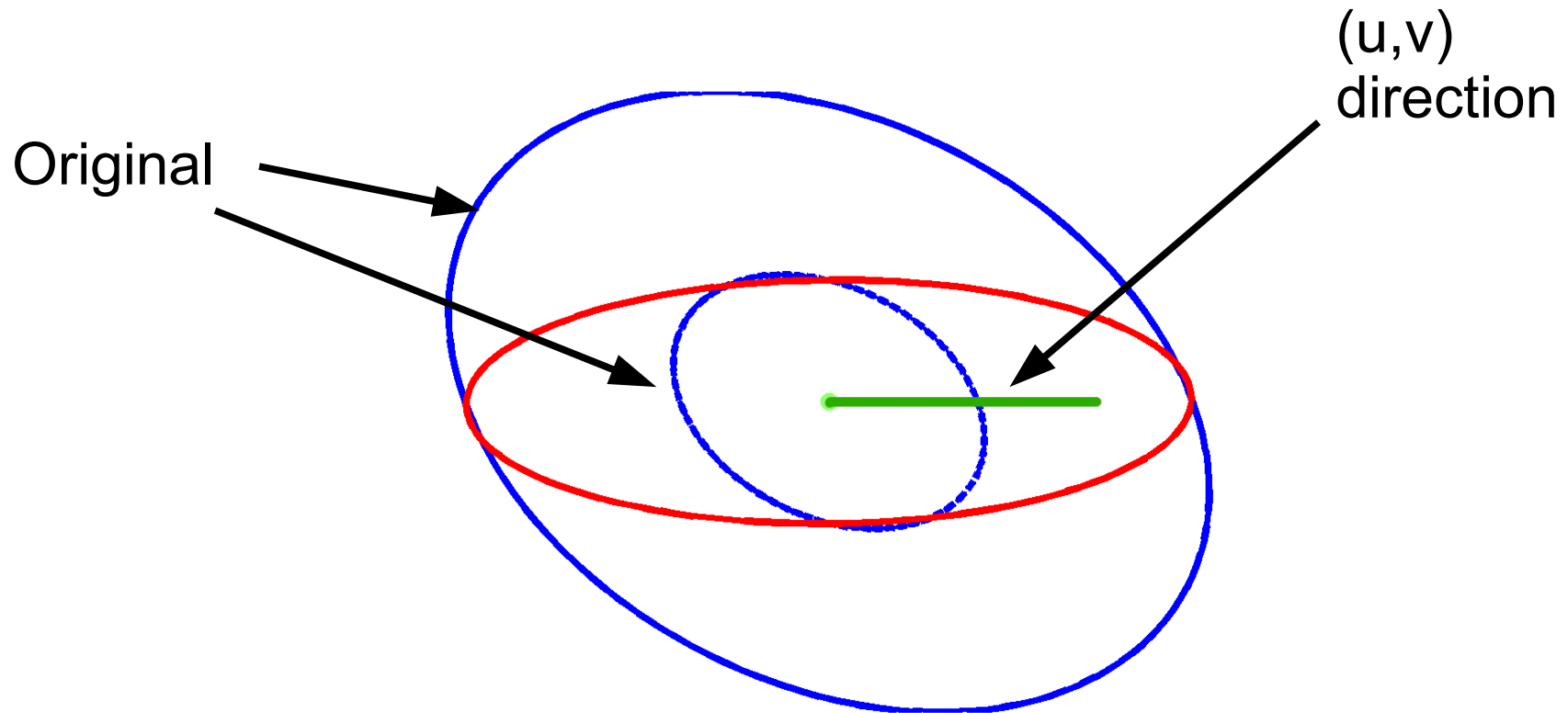
Scene Motion Patterns from Optical Flow

Lance Hartung

# Overview

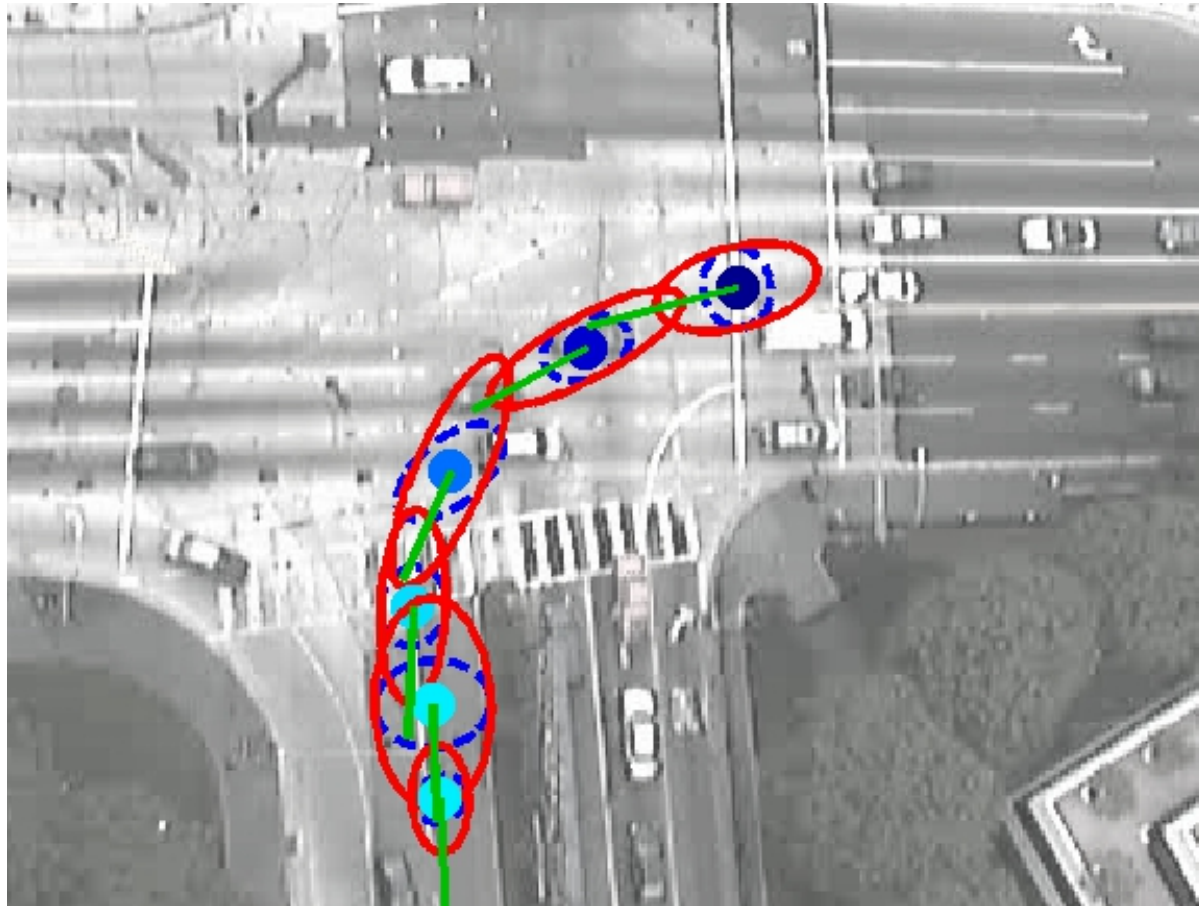
- Last week:
  - Temporal links
- This week:
  - Ellipse reorientation
    - Addresses the problem of bad links
  - Improved KL divergence
  - Visualizations of results

# 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

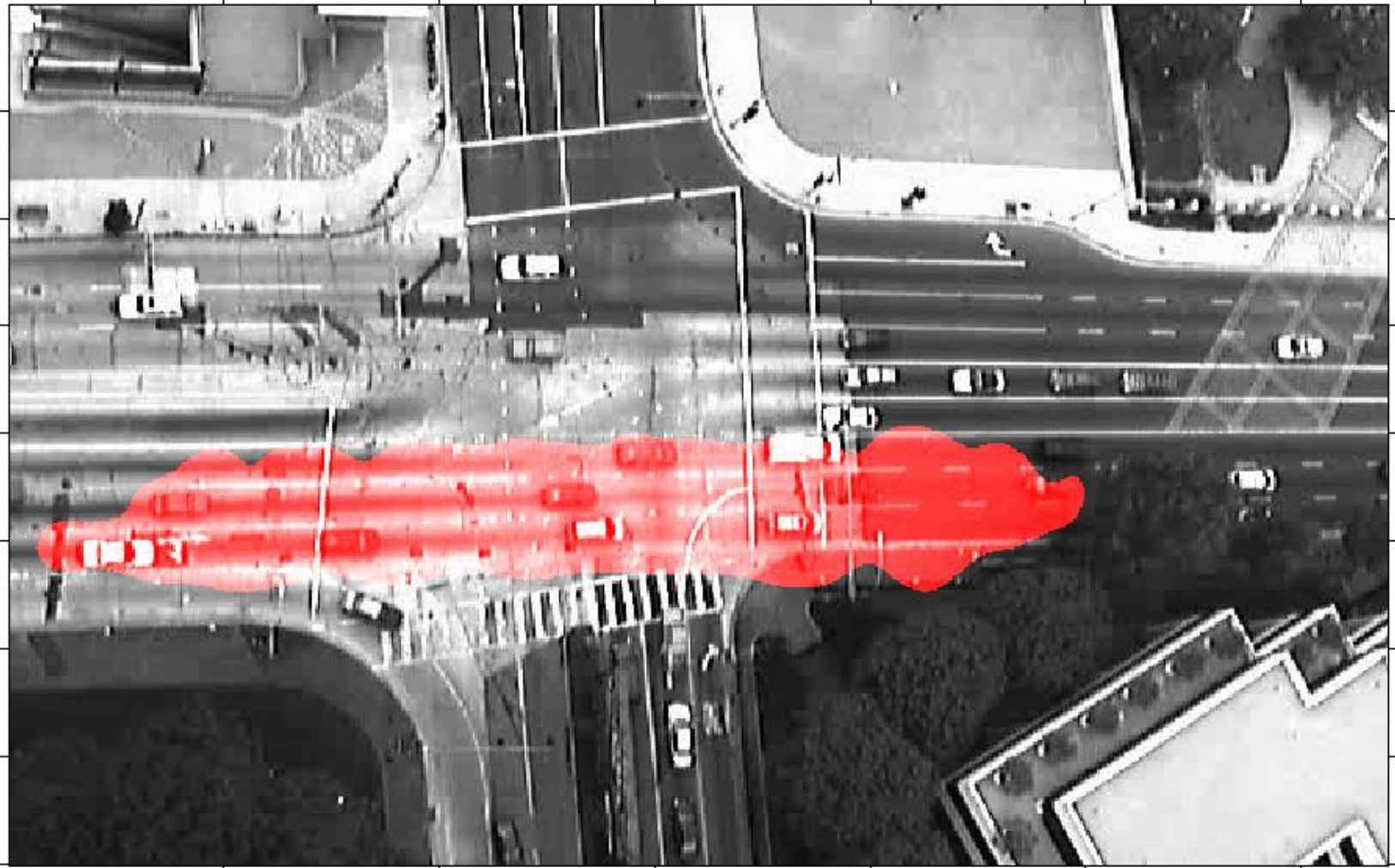
# Before and After



# 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



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