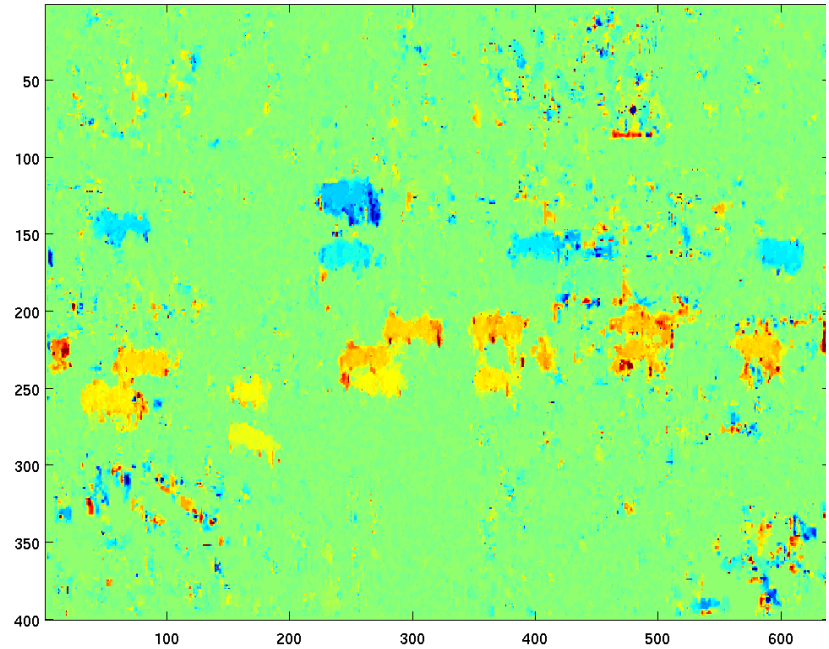
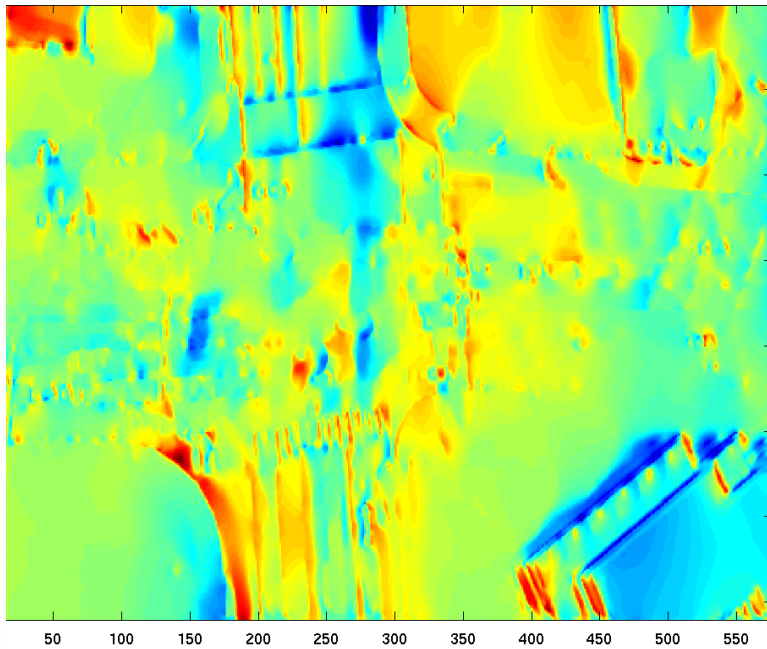


## REU Week 5

# Learning Motion Patterns From Optical Flow

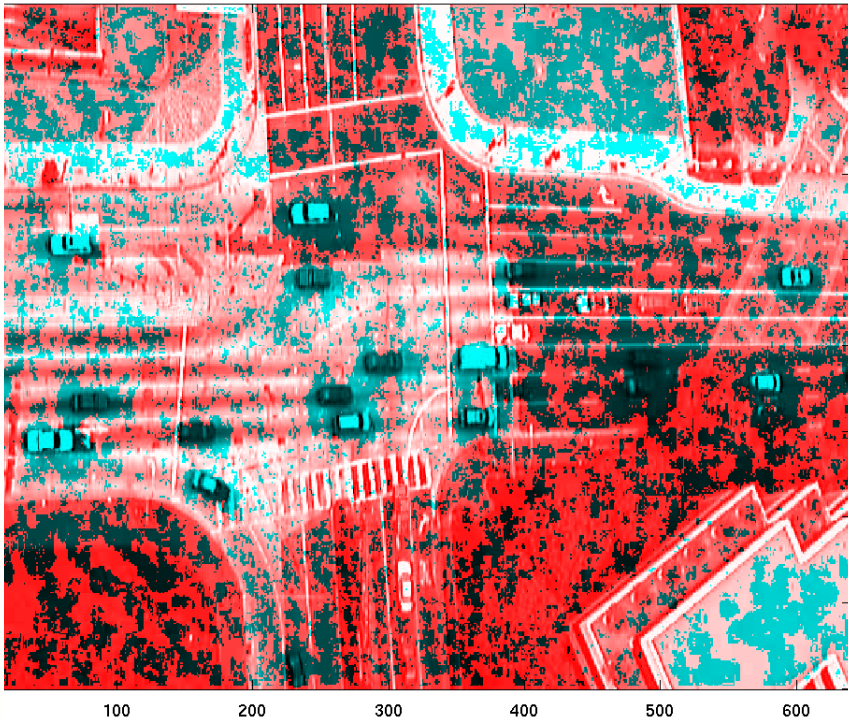


# Improved Optical Flow



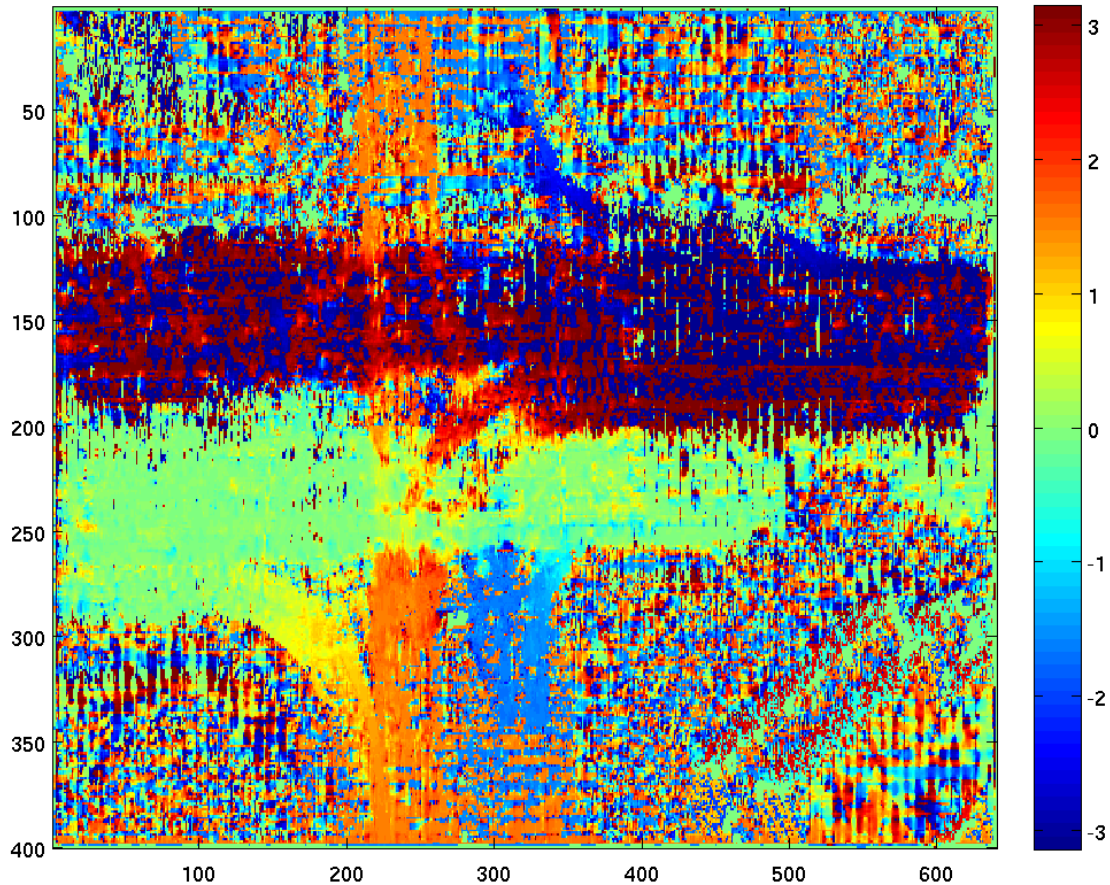
- Using Lucas-Kanade instead of Brox
- Likely problem — choice of parameters

# Discarding Stationary Pixels



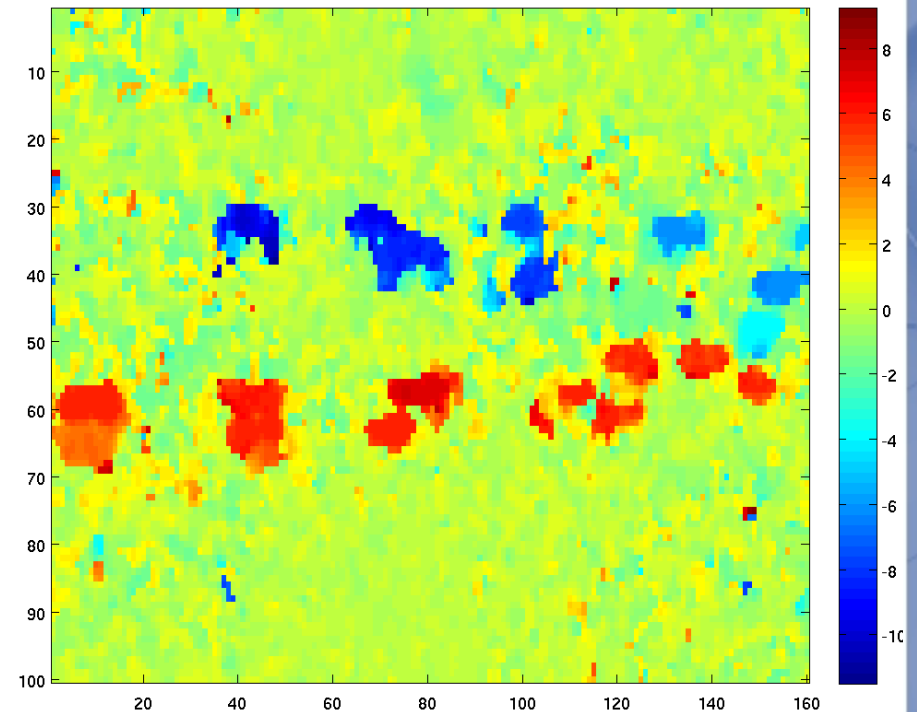
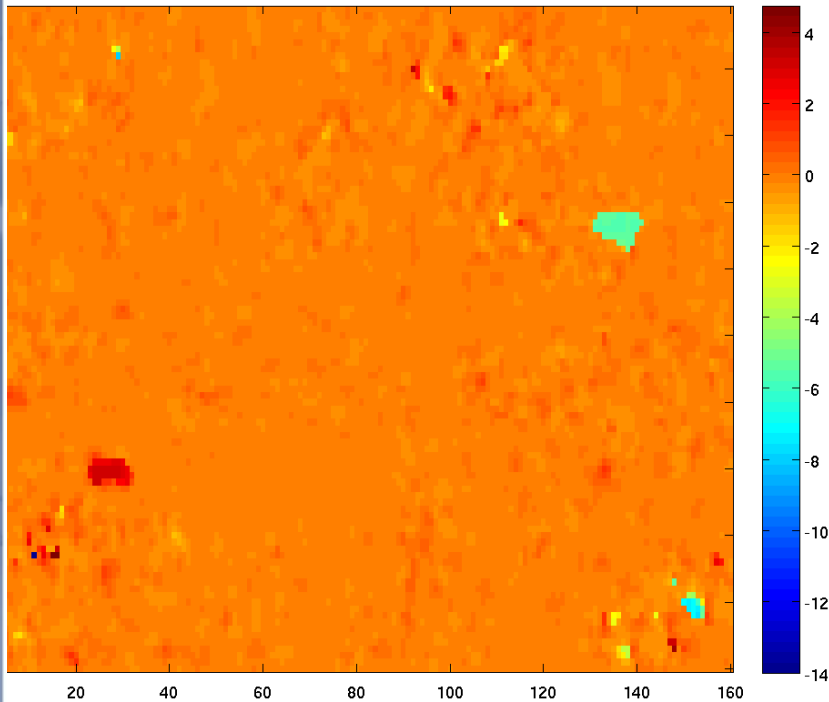
- Use only the moving pixels to train model
- Find magnitude of  $\langle u, v \rangle$  and apply threshold
- What threshold?

# Mean Direction



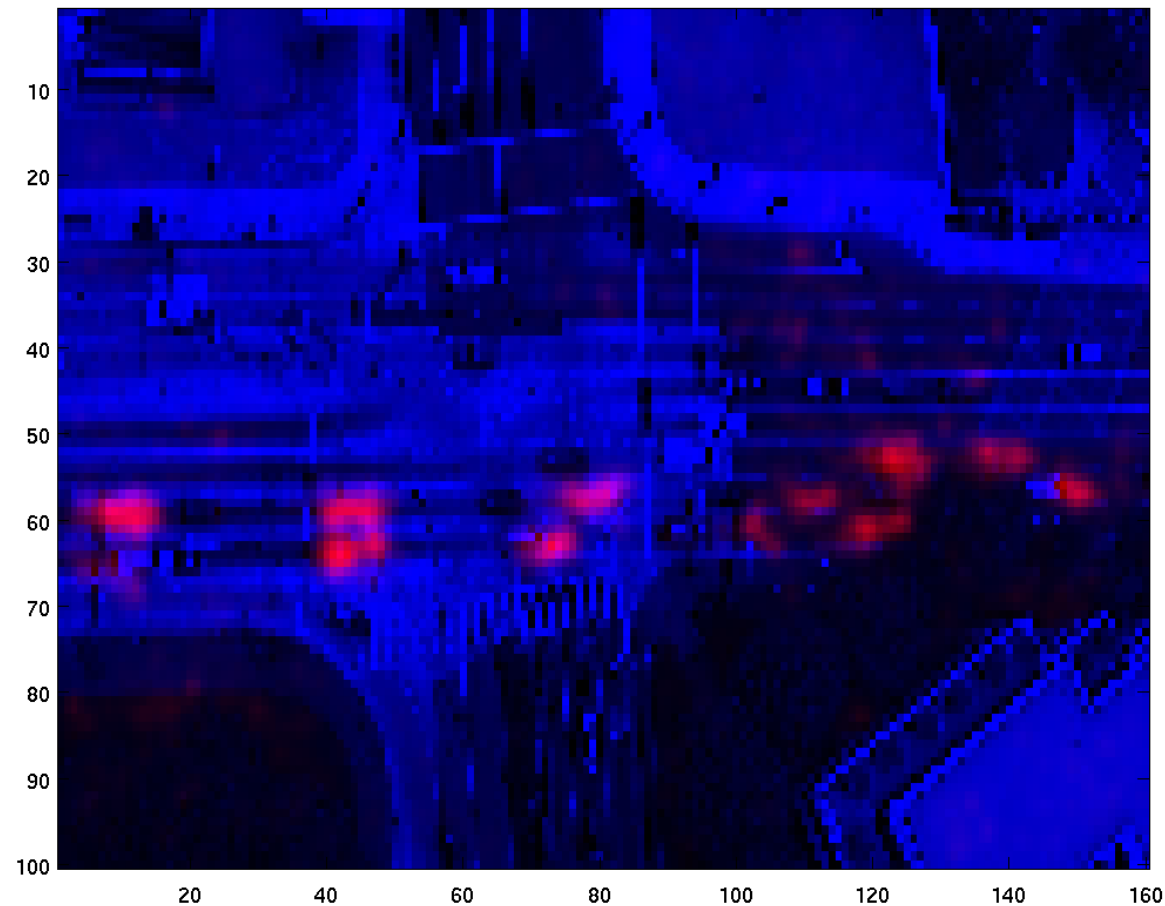
- Given by  $\arctan(v/u)$

# Most Likely U Value



- Without thresholding vs. with thresholding
- Both are from pdf's trained on 3800 frames

# Evaluating Joint Probability



$P(X=x, Y=y, U=6.5, V=0)$  for all  $x,y$

# Current Work

- Finding motion patterns
  - Cluster to find regions of similar motion
  - Incorporate time —  $(x,y,u,v,t)$