We are trying to segment objects (both spatially and temporally) from video sequences. High quality video object segmentation is crucial for intelligent video analysis. We propose unifying our image contour detector (Damascene) with large displacement optical flow (LDOF) to create a pixel affinity matrix for the entire video sequence.

### Algorithm Overview

- **Input Video**
- **Intra frame affinity matrix**
- **Large Displacement Optical Flow** (between frames)
- **Video Pixel Affinity Matrix**
- **Sparse Eigensolver (Lanczos algorithm without reorthogonalization)**
- **Eigenvectors**
- **Postprocess**
- **Contours**

### Results

- Preliminary results are encouraging
- Increased accuracy for tracking moving objects compared to static image contours
- Runtime is ~ 7 seconds / frame on an Intel Core i7 + GTX 480 system

### Future Work

- Generation of closed contours and video objects
- Comparison against state of the art video object segmentation systems