

Hierarchical Supervoxel Graph for Interactive Video Object Representation and Segmentation

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Motivation

Represent/segment objects in videos

- Boundary
- Automation
- Efficiency

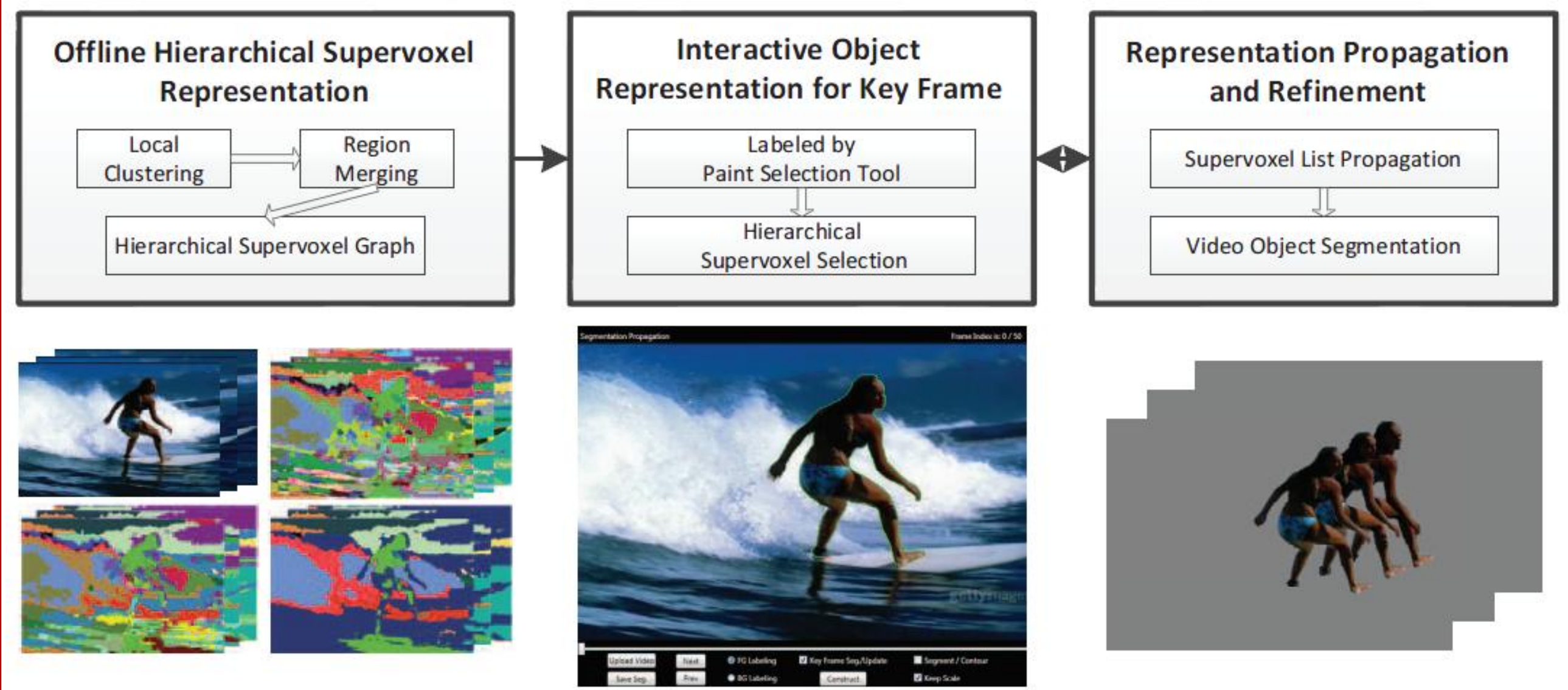


Foreground Extraction

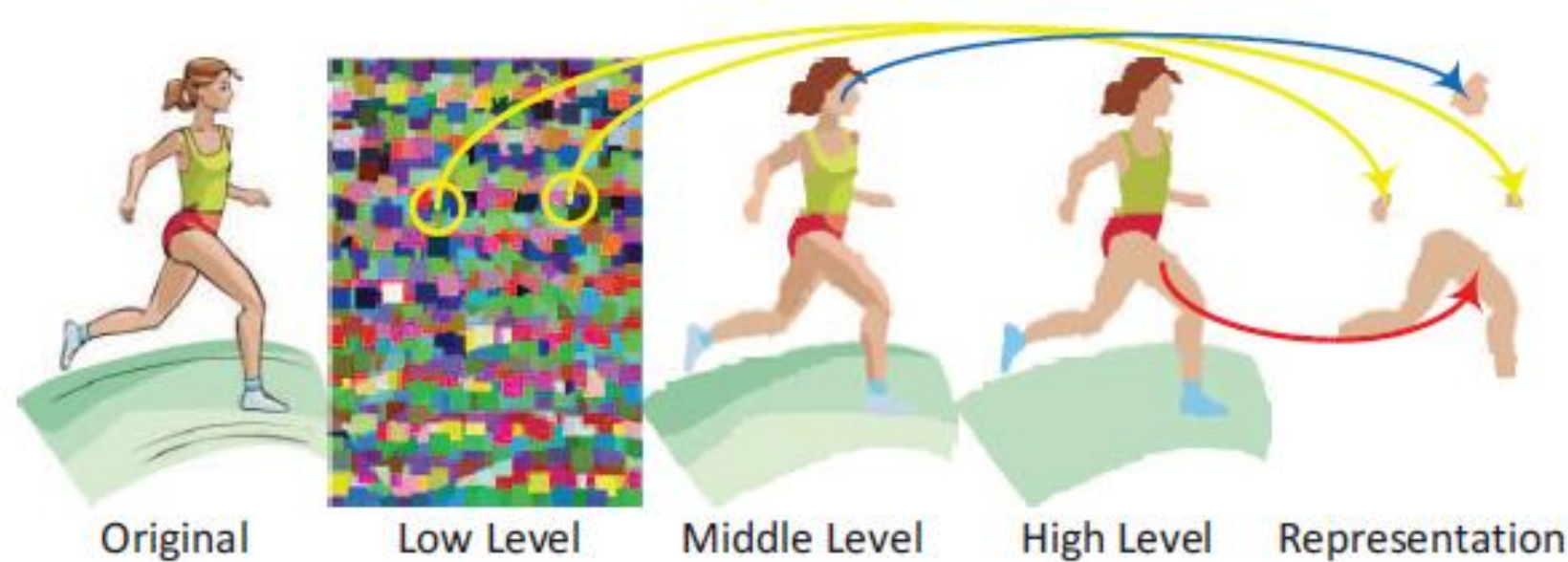
Challenges

- Incoherence
- Motion blur
- Occlusions

Video Object Segmentation Framework



Video Representation: Modified Hierarchical Supervoxel Graph

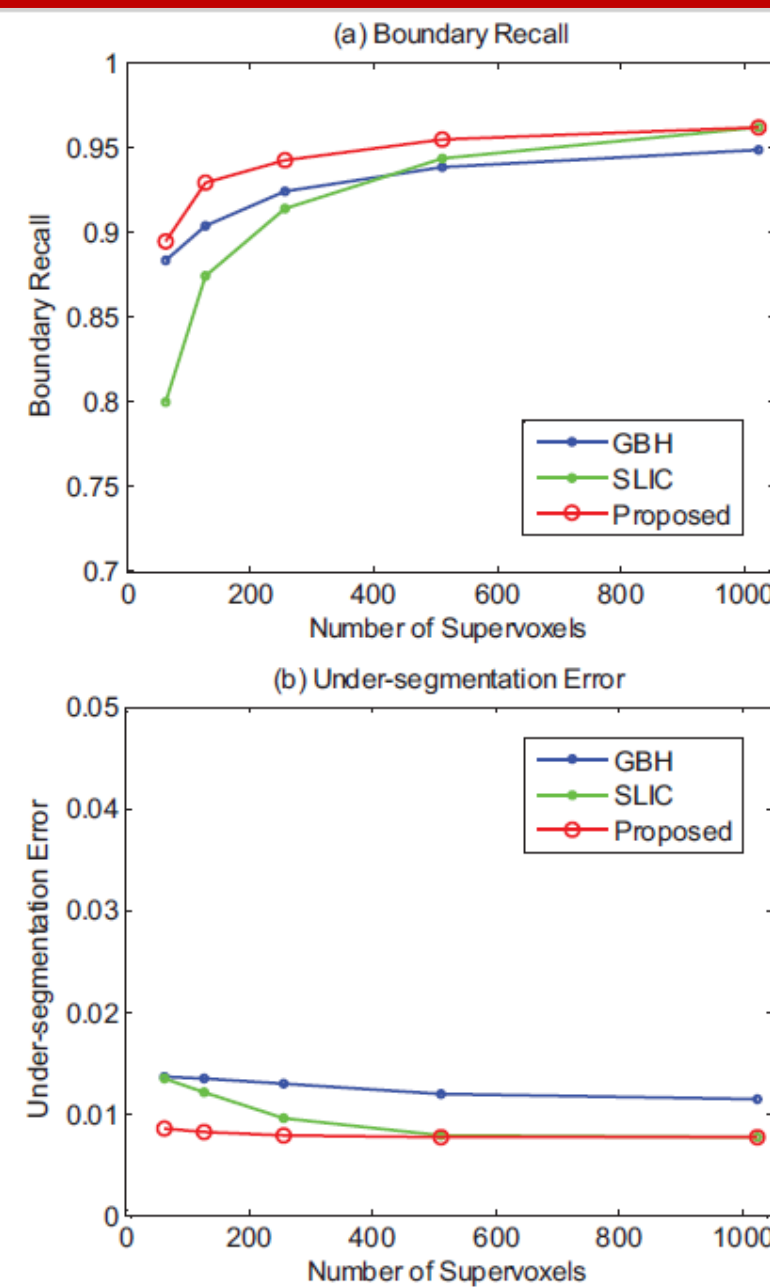


Bottom-Level Supervoxels

- Modification of SLIC for videos

Higher-Level Supervoxels

- Merge two supervoxels with least weighted edge one by one



Original GBH (64) SLIC (64) **Our (64)**

Object Representation: Interactive Hierarchical Supervoxel Selection

Represent the objects along the time using supervoxel list sequences

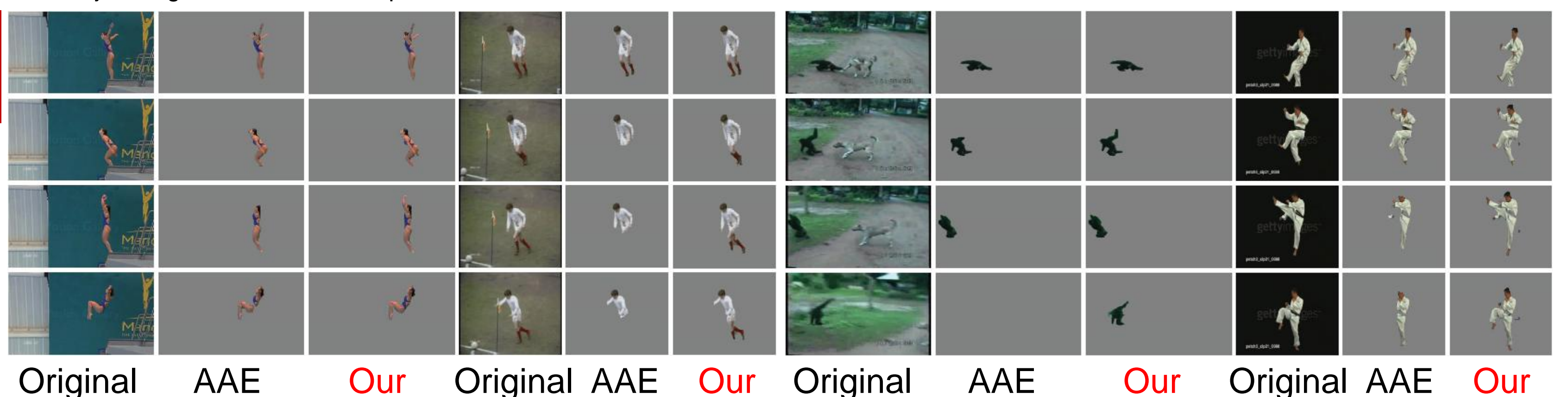
- Union set of the supervoxels – match the labeled regions
- Number of supervoxels – as few as possible

Algorithm	Object Accuracy	Boundary Accuracy
Adobe After Effects	80.00 %	53.06 %
Our Method	88.07 %	63.26 %

We use Adobe After Effects CS5 (AAE) for video object segmentation in the experiments.

Our Features

- Better boundary
- Larger motion
- Some occlusions



Original AAE **Our** Original AAE **Our** Original AAE **Our** Original AAE **Our**