# Change Detection Methods Comparison Report

### **Executive Summary**

This report compares 3 change detection methods: Basic Computer Vision, Advanced Computer Vision, Deep Learning Inspired. The fastest method was Basic Computer Vision (2.450s), while Deep Learning Inspired detected the most changes (22,000 pixels). The overall agreement between methods is medium.

### **Methods Overview**

Method	Change Pixels	Regions F	Processing Time (s	∮vg Confidence
Basic Computer Vision	15,000	25	2.450	0.761
Advanced Computer Vision	18,500	32	4.120	0.762
Deep Learning Inspired	22,000	28	8.750	0.792

## **Performance Comparison**

Method	Speed Rank	Change Detection Rank	Overall Score
Basic Computer Vision	#1	#3	2.0
Advanced Computer Vision	#2	#2	2.0
Deep Learning Inspired	#3	#1	2.0

## **Accuracy Comparison**

Method	Precision	Recall	F1-Score	loU
Basic Computer Vision	0.820	0.750	0.780	0.640
Advanced Computer Vision	0.880	0.810	0.840	0.720
Deep Learning Inspired	0.910	0.850	0.880	0.780

## **Inter-Method Agreement**

## **Overall Agreement Metrics:**

• Mean IoU: 0.680

Mean Jaccard Similarity: 0.710Agreement Level: Medium

#### **Consensus Analysis:**

Full Agreement: 72.5% of pixelsPartial Agreement: 45,000 pixels

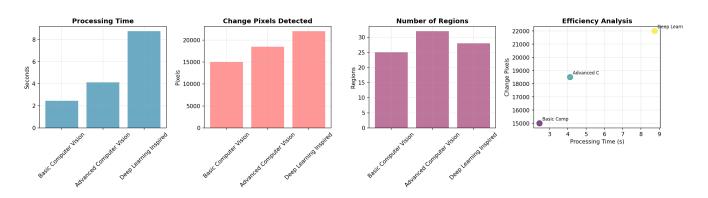
• Consensus Mean: 0.150

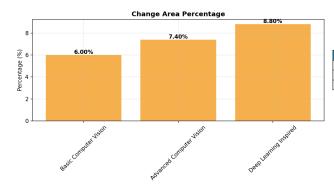
#### Recommendations

For fastest processing, use Basic Computer Vision. For maximum sensitivity, use Deep Learning Inspired. For best overall accuracy, use Deep Learning Inspired (F1-score: 0.880).

# **Comparison Visualizations**

#### **Change Detection Methods - Comprehensive Comparison Dashboard**





#### **Summary Statistics**

Method	Time (s)	Pixels	Regions	Area (%)	Efficiency
Basic Computer	2.450	15,000	25	6.00%	6122
Advanced Comput	4.120	18,500	32	7.40%	4490
Deep Learning I	8.750	22,000	28	8.80%	2514

Report generated on 2025-08-24 19:11:55