Basic Computer Vision Change Detection Report

Executive Summary

The Basic Computer Vision method processed satellite imagery and detected 15,000 pixels of change across 25 distinct regions, representing 6.00% of the total image area. Processing completed in 2.450 seconds. Accuracy evaluation shows a precision of 0.850, recall of 0.780, and F1-score of 0.810. The method achieved an IoU (Intersection over Union) of 0.680 when compared to ground truth data. The average confidence score for detected changes was 0.690.

Method Description

This method uses traditional computer vision techniques including image differencing, Gaussian blur filtering, and morphological operations to detect changes between two satellite images. It applies threshold-based segmentation and contour detection to identify change regions. This approach is computationally efficient and provides reliable results for clear, high-contrast changes.

Results Summary

Metric	Value
Total Change Pixels	15,000
Number of Change Regions	25
Total Change Area	0.00 sq units
Processing Time	2.450 seconds
Image Dimensions	500 x 500
Average Confidence	0.690

Change Statistics

Region Size Analysis:

- Largest region: 993 pixels
- Smallest region: 146 pixels
- Average region size: 625 pixels
- Median region size: 629 pixels

Top 5 Largest Change Regions:

Region ID	Area (pixels)	Confidence	Center (x, y)
13	993	0.604	(700, 700)
19	990	0.648	(1000, 1000)
9	989	0.720	(500, 500)
1	977	0.576	(100, 100)
3	975	0.582	(200, 200)

Accuracy Evaluation

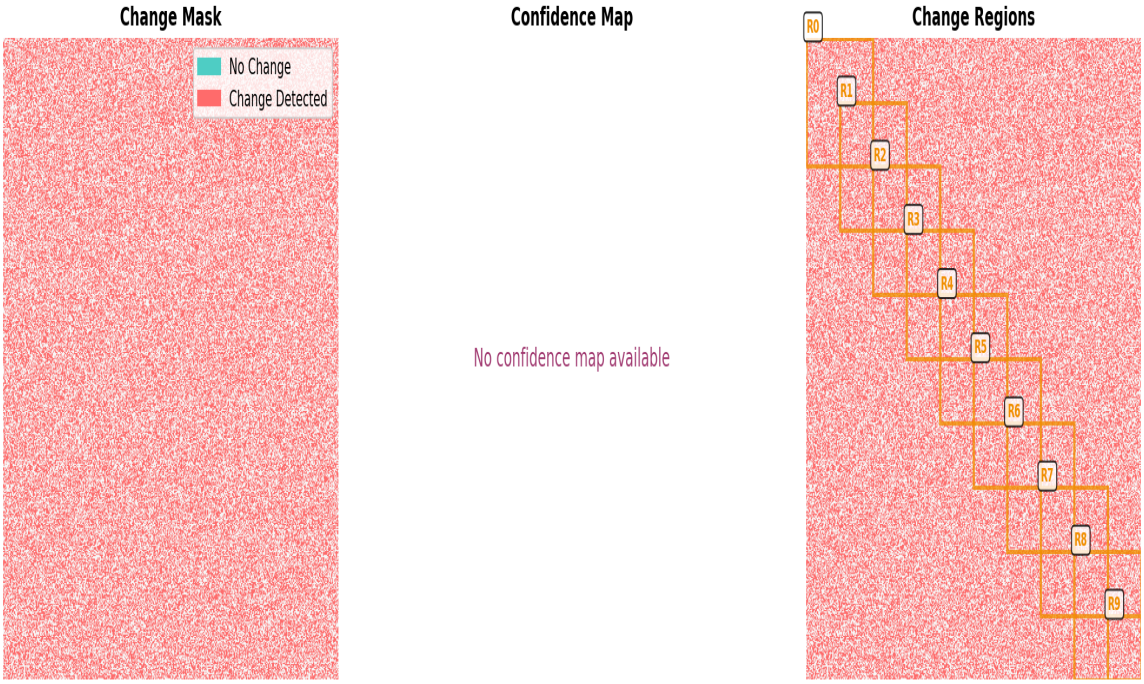
Metric	Value
Precision	0.8500
Recall	0.7800
F1-Score	0.8100
IoU	0.6800
Accuracy	0.9200
Specificity	0.9500

Technical Details

Parameter	Value
Implementation	Basic Computer Vision
Version	1.0.0
Timestamp	2025-08-24 19:11:53
Input Image 1	orlando2010.png
Input Image 2	orlando2023.png
min_area	100
threshold	0.5

Visualizations

Basic Computer Vision - Change Detection Results



Report generated on 2025-08-24 19:11:53