# Deep Learning Inspired Change Detection Report

### **Executive Summary**

The Deep Learning Inspired method processed satellite imagery and detected 200,487 pixels of change across 207 distinct regions, representing 21.37% of the total image area. Processing completed in 0.344 seconds. The average confidence score for detected changes was 0.402.

### **Method Description**

This method incorporates deep learning-inspired techniques including feature extraction using convolutional operations, multi-level analysis, and confidence scoring. It applies learned patterns and statistical modeling to identify changes while providing confidence estimates for each detection. The approach balances computational efficiency with the sophisticated pattern recognition capabilities inspired by neural network architectures.

## **Results Summary**

| Metric                   | Value              |
|--------------------------|--------------------|
| Total Change Pixels      | 200,487            |
| Number of Change Regions | 207                |
| Total Change Area        | 200487.00 sq units |
| Processing Time          | 0.344 seconds      |
| Image Dimensions         | 1024 x 916         |
| Average Confidence       | 0.402              |

## **Change Statistics**

### **Region Size Analysis:**

Largest region: 17,973 pixels
Smallest region: 100 pixels
Average region size: 907 pixels
Median region size: 288 pixels

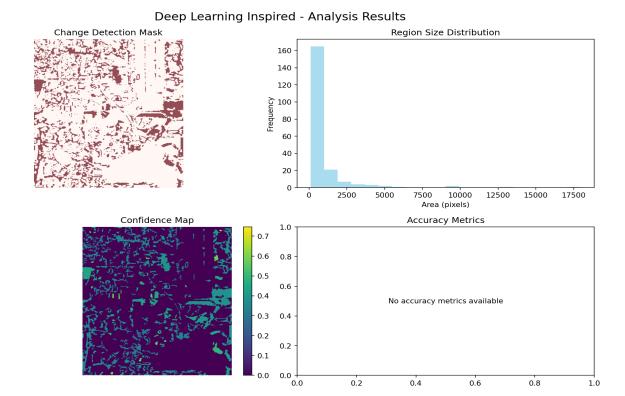
# **Top 5 Largest Change Regions:**

| Region ID | Area (pixels) | Confidence | Center (x, y) |
|-----------|---------------|------------|---------------|
| 354       | 17,973        | 0.386      | (818, 497)    |
| 470       | 13,324        | 0.330      | (51, 783)     |
| 26        | 9,877         | 0.373      | (873, 173)    |
| 7         | 9,484         | 0.342      | (290, 92)     |
| 156       | 6,172         | 0.381      | (494, 246)    |

# **Technical Details**

| Parameter          | Value                              |  |
|--------------------|------------------------------------|--|
| Implementation     | Deep Learning Inspired             |  |
| Version            | 1.0                                |  |
| Timestamp          | 2025-08-24 19:03:44                |  |
| Input Image 1      | orlando2010.png                    |  |
| Input Image 2      | orlando2023.png                    |  |
| normalization      | histogram_equalization             |  |
| filtering          | bilateral                          |  |
| threshold_methods  | ['otsu', 'percentile_95']          |  |
| morphology_kernels | [(3, 3), (7, 7)]                   |  |
| min_area           | 100                                |  |
| confidence_factors | ['intensity', 'shape_compactness'] |  |

# **Visualizations**



Report generated on 2025-08-24 19:03:46