Binary Classification Using (tensor) LDA

Awais Bajwa,
Shinho Kang,
Omar Gutiérrez

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Outline

Linear Discriminant Analysis

- Implement a binary classifier for car detection.
- Using (conventional) Linear Discriminant Analysis.

Determine w

$$w = \arg\max_{w} \frac{w^T S_B w}{w^T S_W w} \quad (1)$$

Plot from w

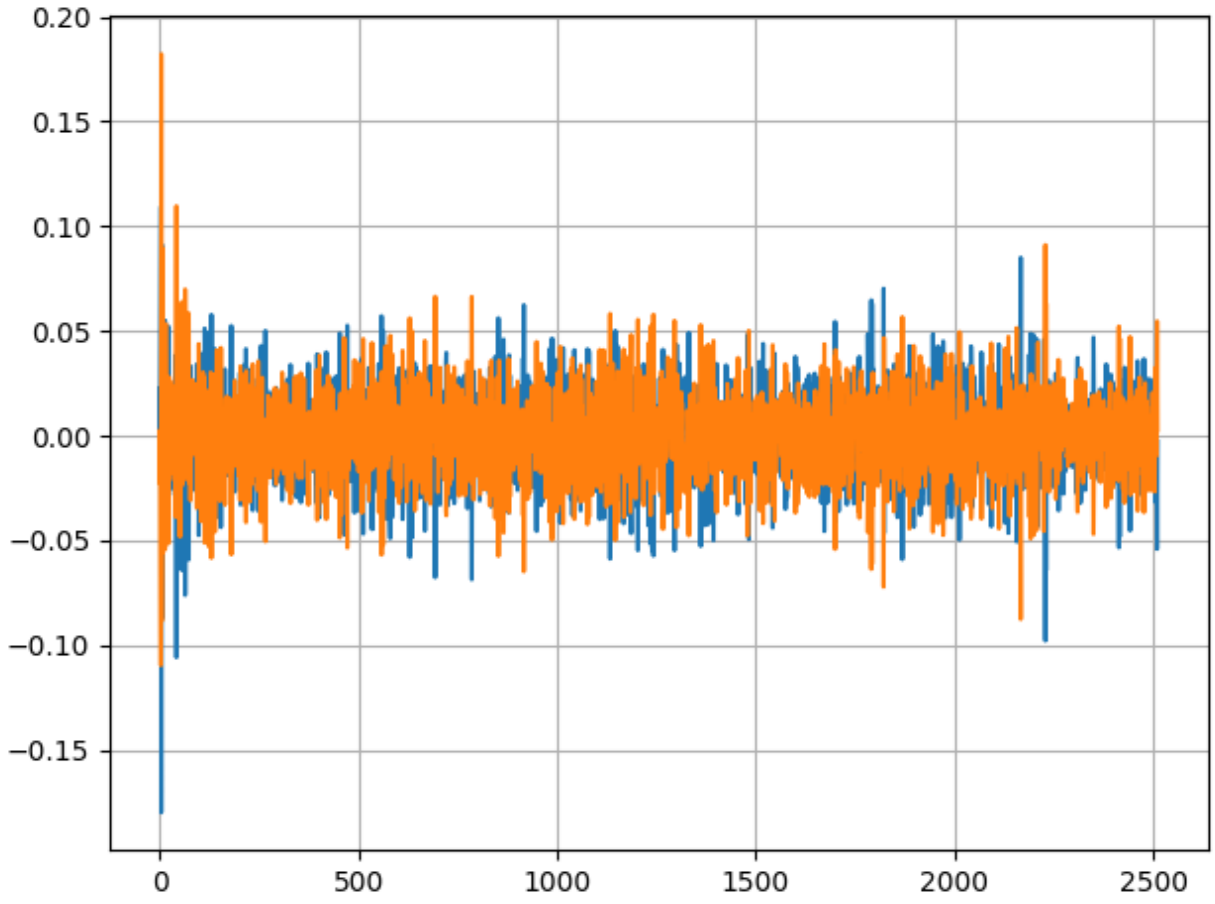

Figure 1: Plot from w

Result

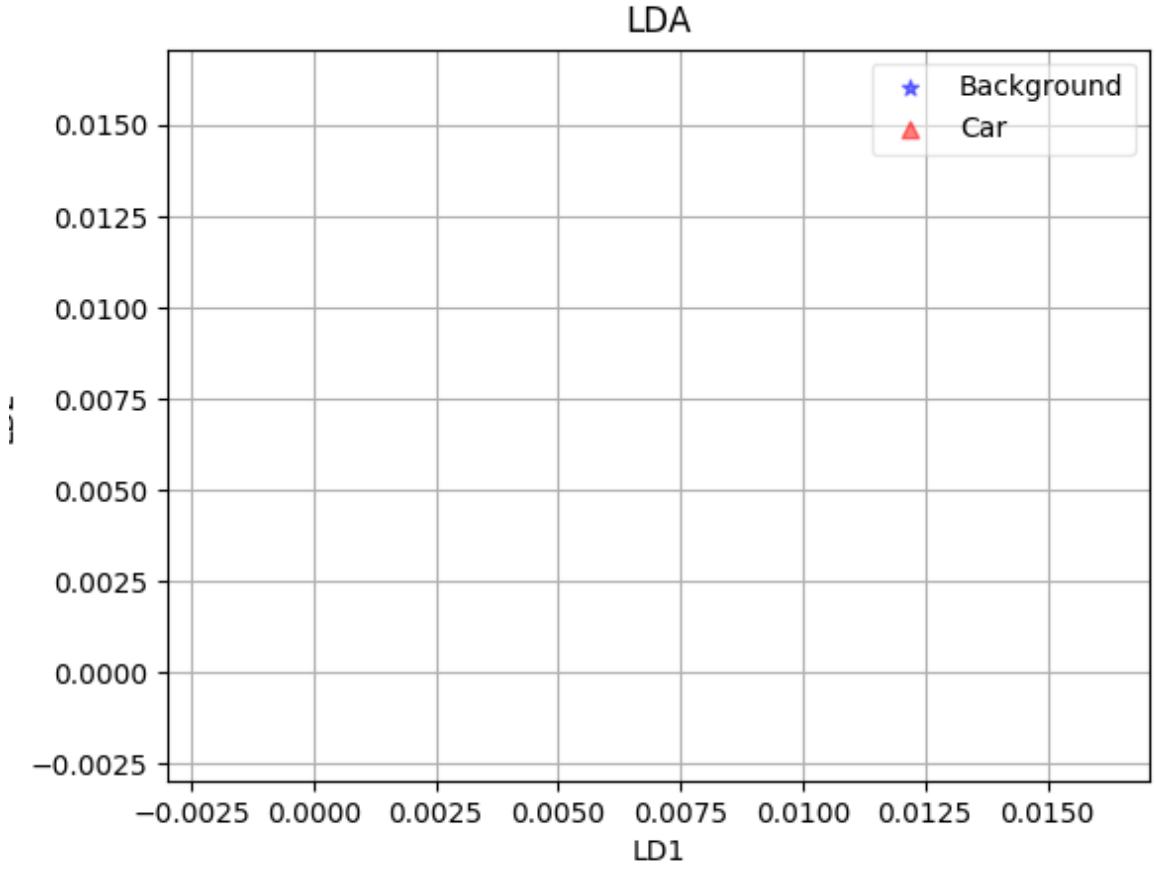

Figure 2: Result from LDA

Precision and recall

$$Precision = \frac{tp}{tp + fp} \tag{2}$$

$$Recall = \frac{tp}{tp + fn} \tag{3}$$

Precision and recall

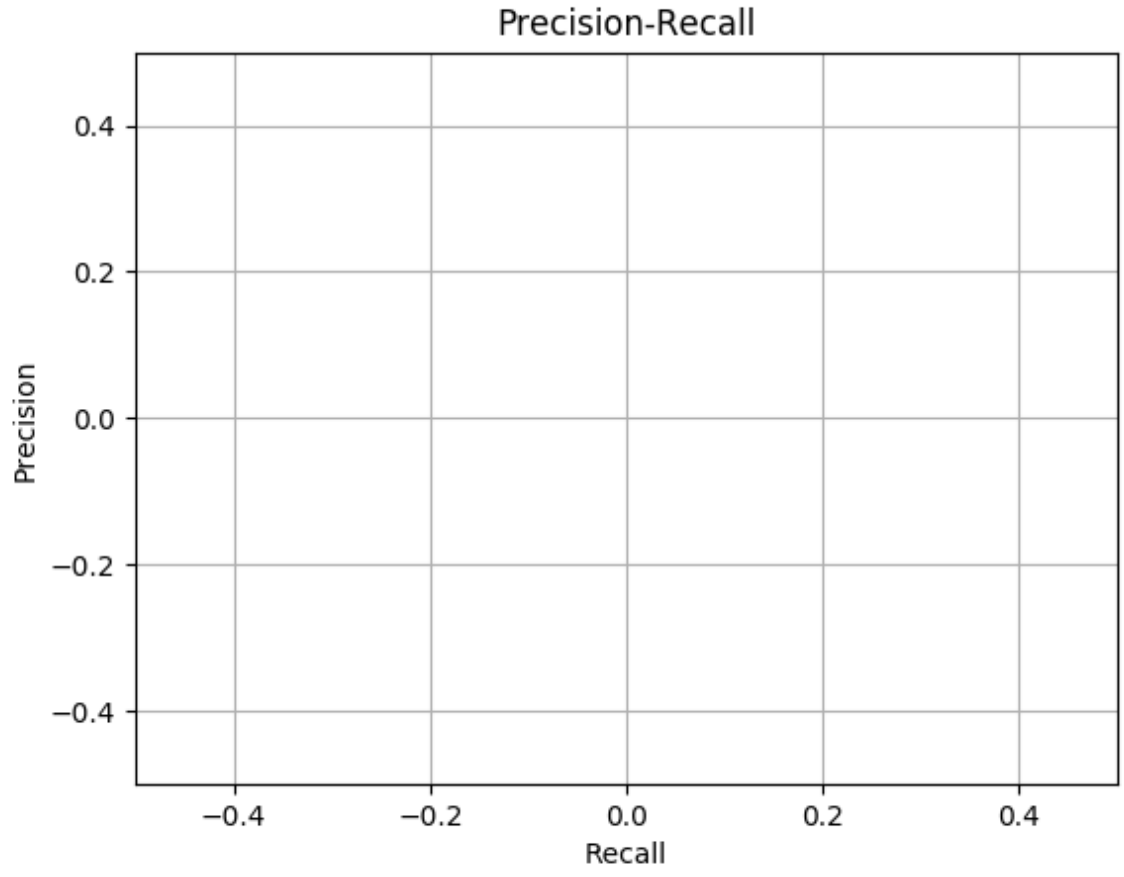

Figure 3: Precision and recall

Tensor Linear Discriminant Analysis

- Implement the Tensor Linear Discriminant Analysis

Tensor W output