

Calculating the Similarity between Images



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Module Overview



Introduce and understand image comparison

Implement subtract comparison

Introduce and understand histogram comparison systems

Implement histogram comparison

Understanding Image Comparison

Image Similarity

Some measure of how similar or dissimilar two images are relative to each other.

Image Similarity



Original
image



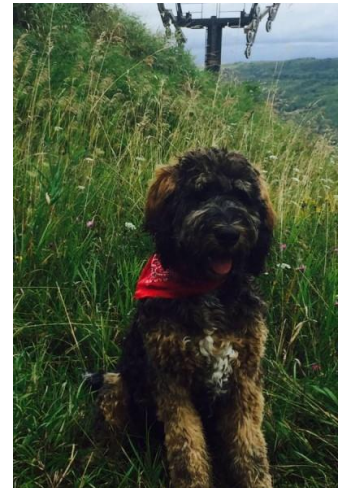
Exact same
image



Exact same
image with a
difference



Very similar
image but not
the same



Very different
image

Image Comparison Applications



Counterfeit Money



**Forged Signatures
Fake Credit Cards**



Fraudulent Art

Implementing Subtraction Comparison

Understanding Histogram Comparison

Histogram

A representation of the distribution of numerical data.

Histogram

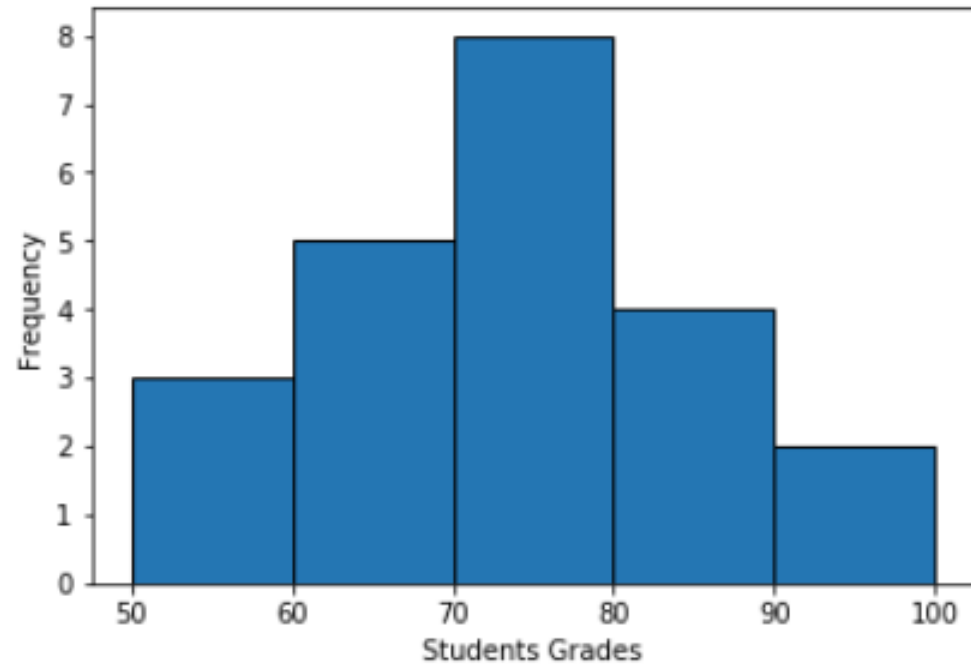


Image Histogram



Original Image

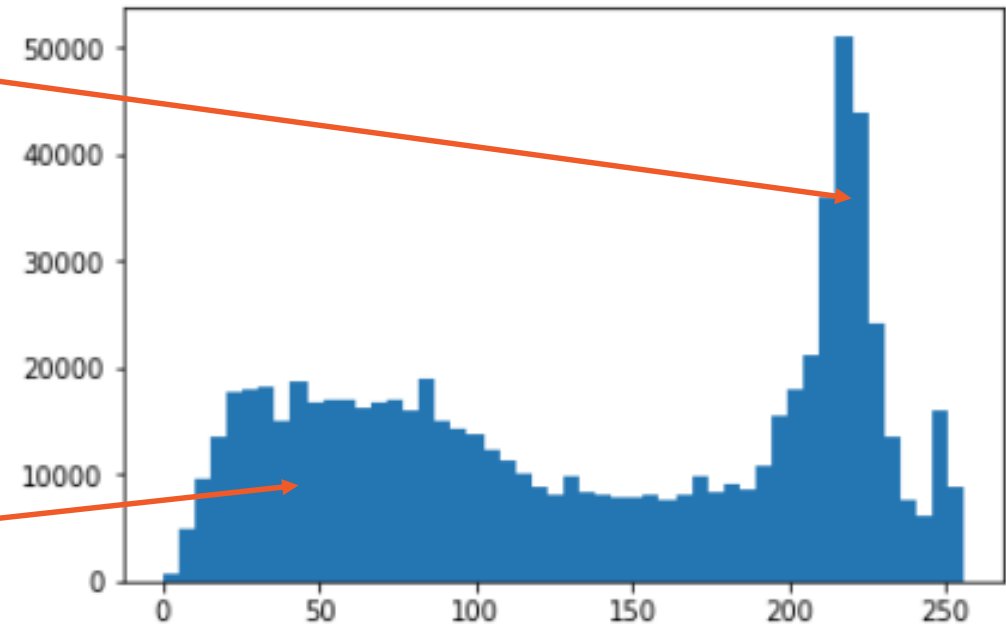
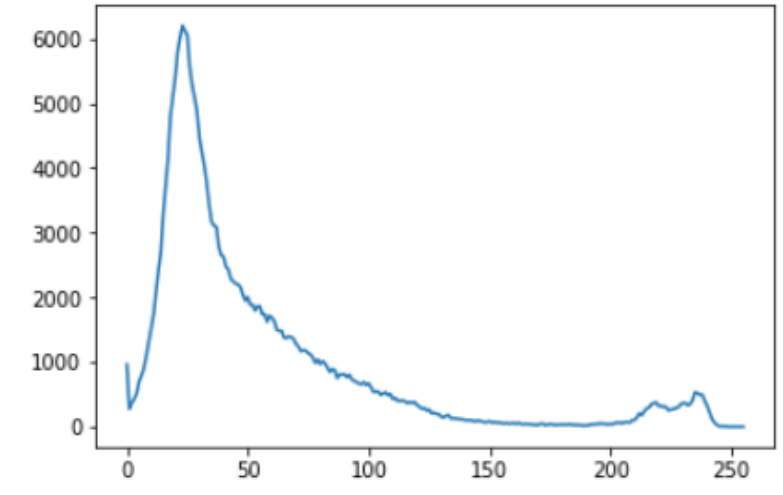
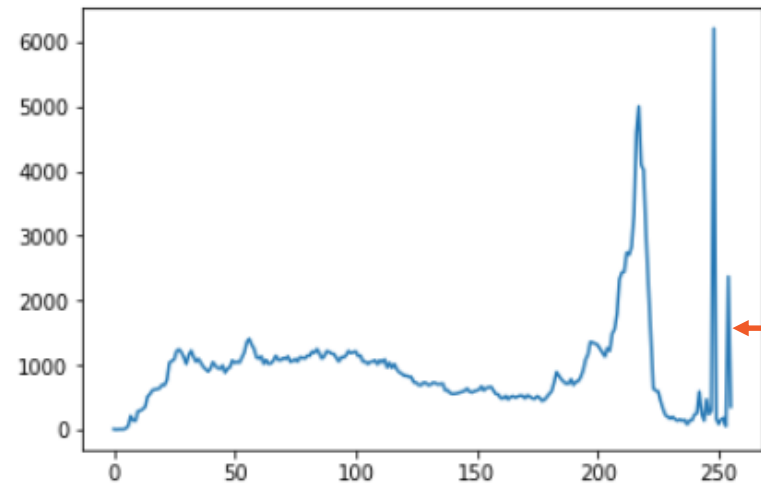
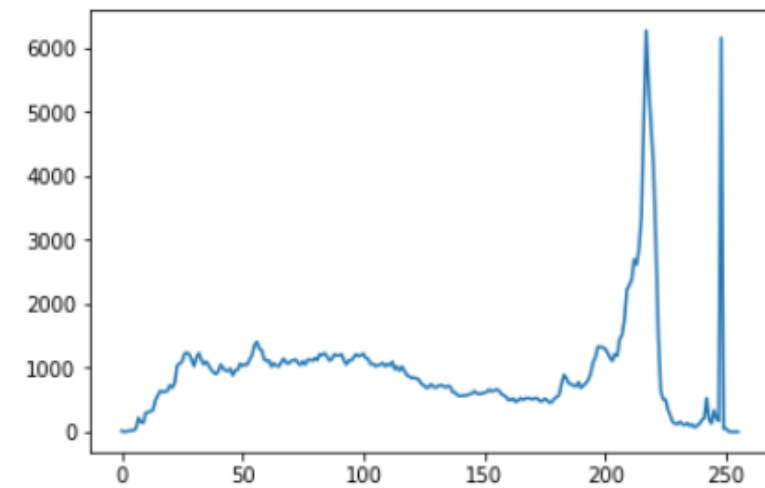
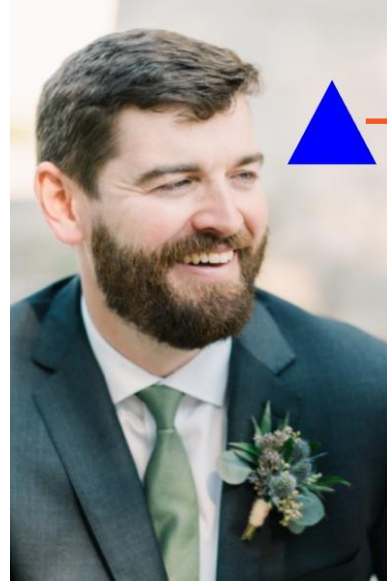


Image Histogram

Histogram Comparison

Comparing two histograms to measure how well they match.

Histogram Comparison



Implementing Histogram Comparison

Summary



Introduced and understood image comparison

Implemented subtraction comparison

Introduced and understood histogram comparison systems

Implemented histogram comparison