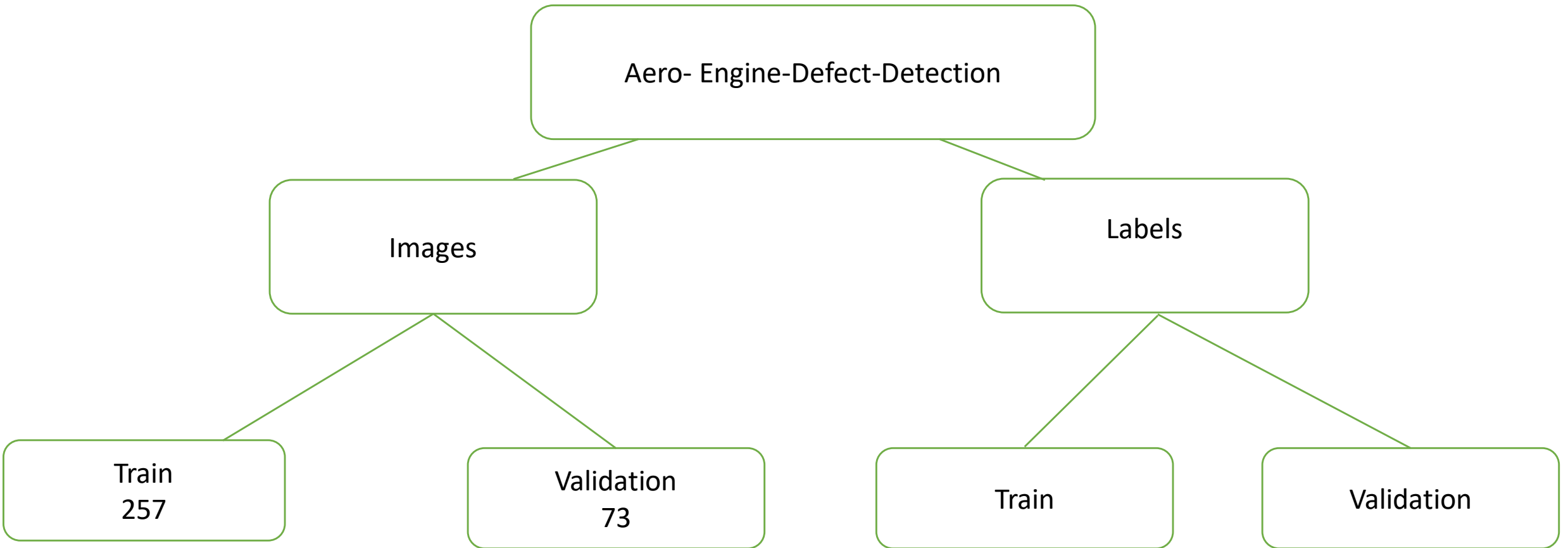


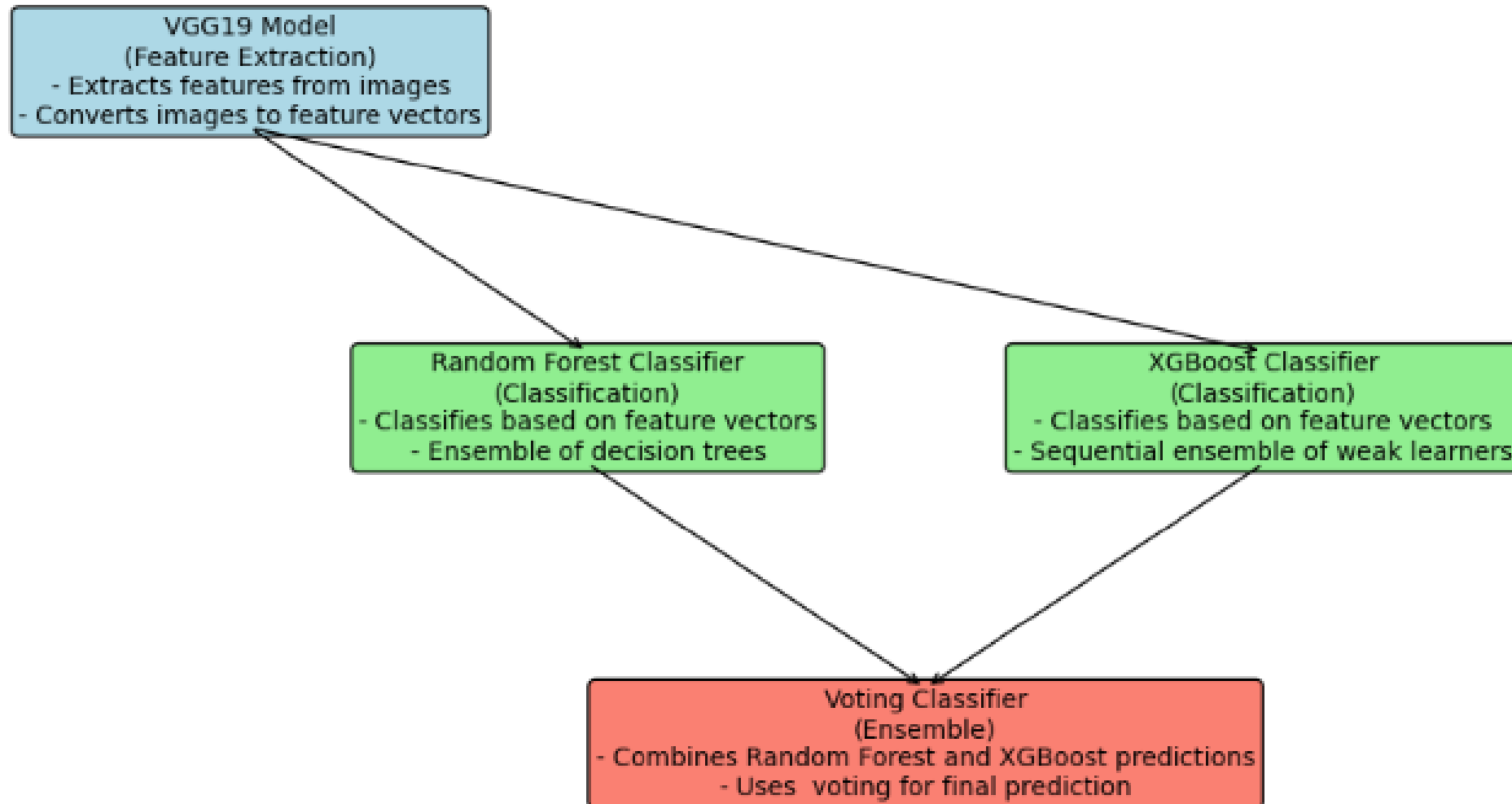
# Aero-engine defect Classification

# Dataset Characteristic

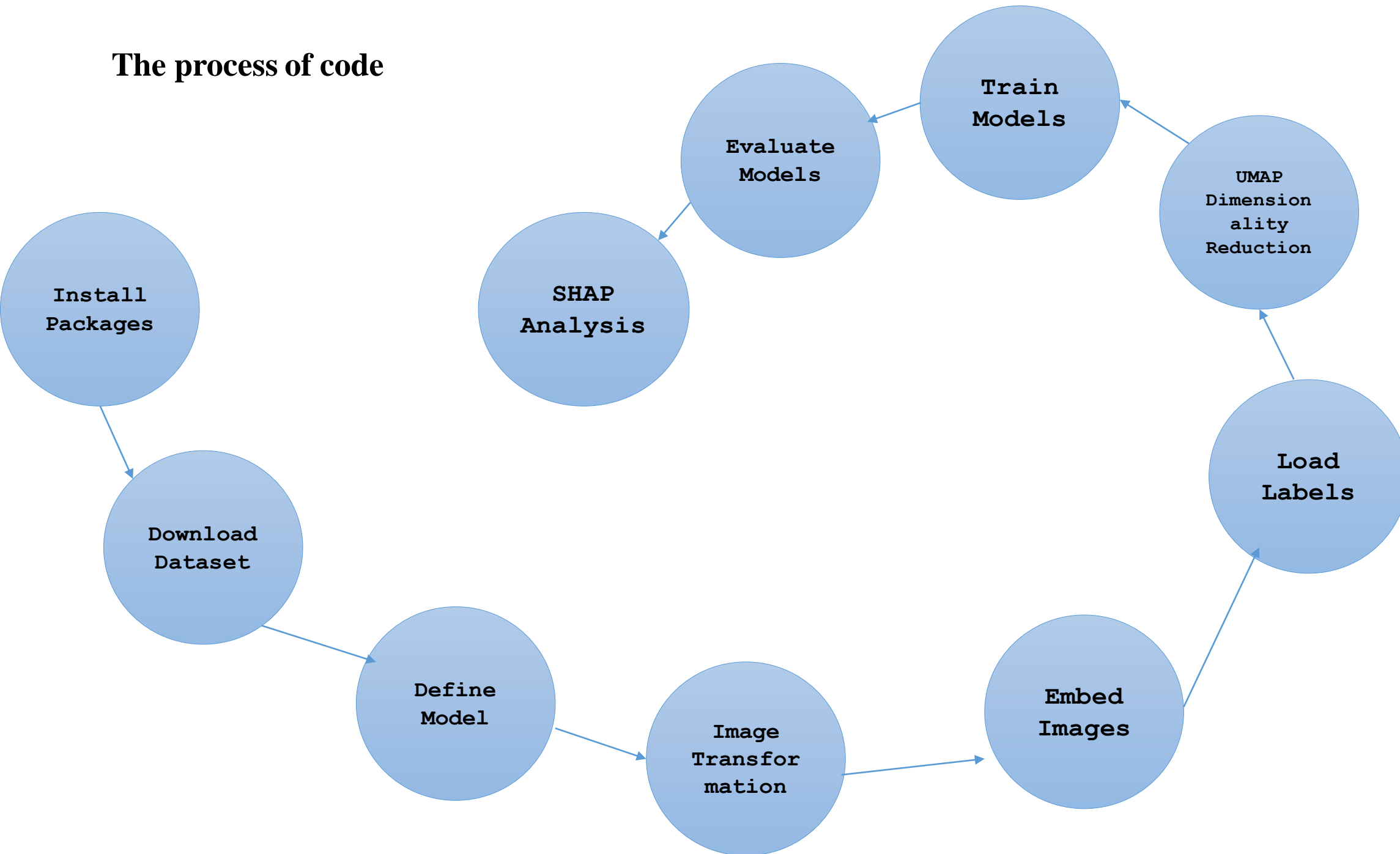


<https://www.kaggle.com/datasets/wolfmedal/aero-engine-defect-new/data>

# Models Used

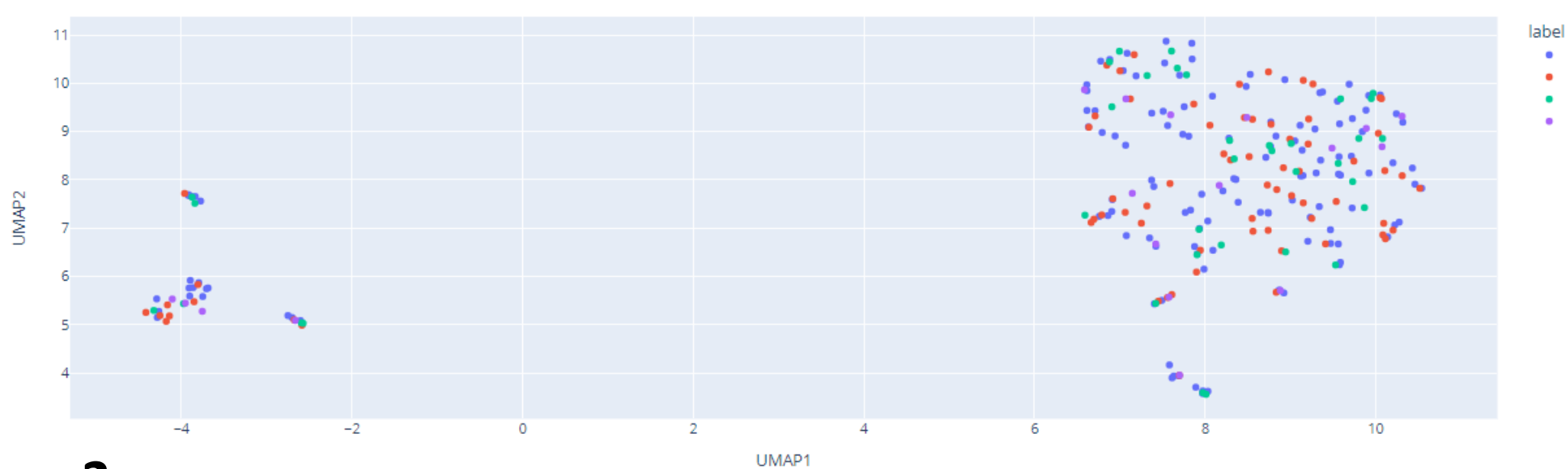


## The process of code

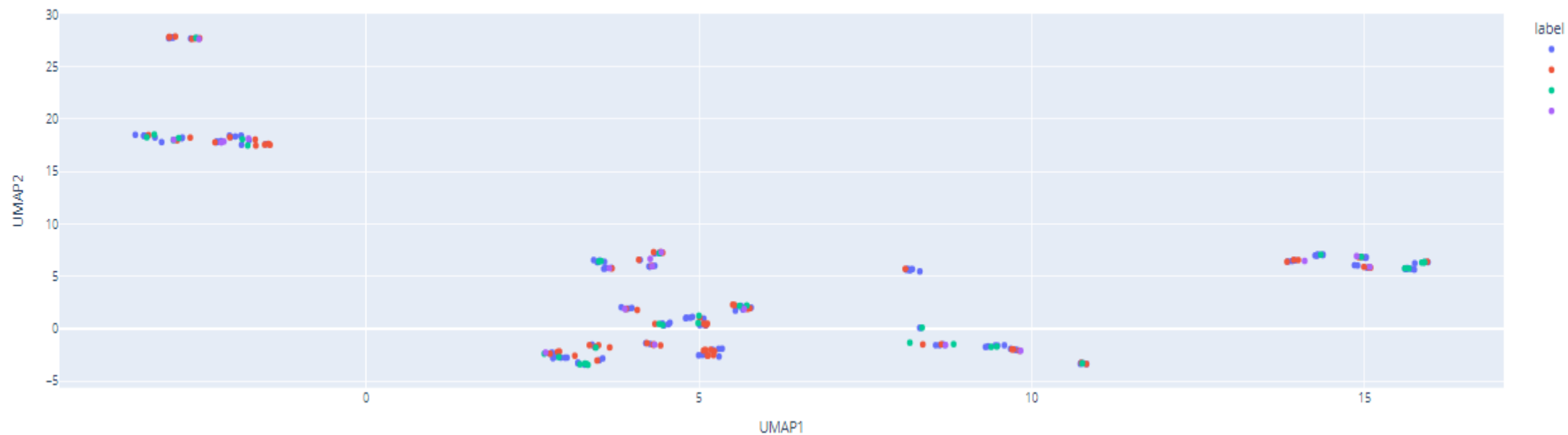


1.

UAMP Projection of Image Embeddings :1- VGG19, 2. DeiT



2.



## Metrics For 1. VGG19 and 2. DeiT

1.

	precision	recall	f1-score
scratch	0.82	0.94	0.88
dot	0.83	0.83	0.83
crease	1.00	0.73	0.84
damage	0.89	0.73	0.80
accuracy			0.85
macro avg	0.89	0.81	0.84
weighted avg	0.86	0.85	0.85

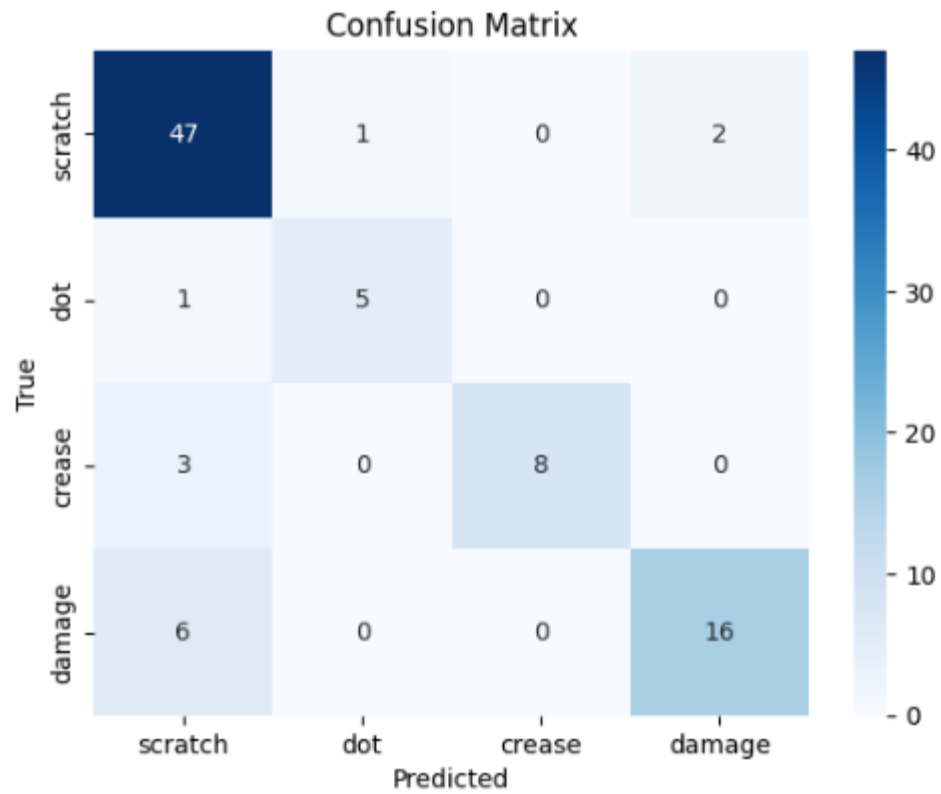
2.

	precision	recall	f1-score	s
scratch	0.91	1.00	0.95	
dot	1.00	0.83	0.91	
crease	1.00	0.73	0.84	
damage	1.00	0.95	0.98	
accuracy			0.94	
macro avg	0.98	0.88	0.92	
weighted avg	0.95	0.94	0.94	

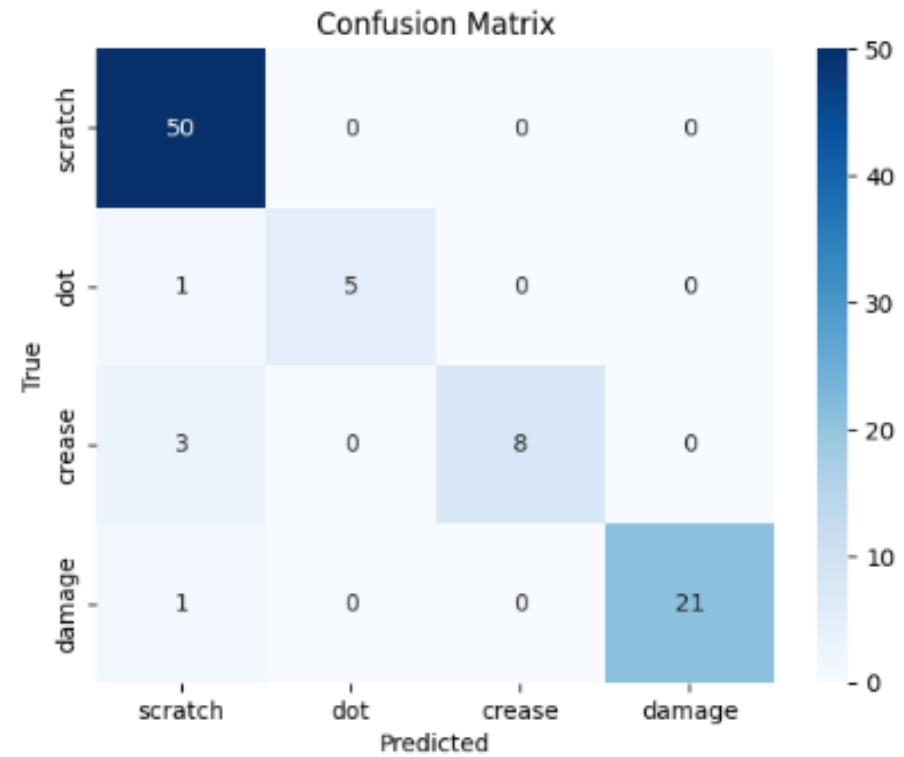
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## Confusion Matrix: 1. VGG19, 2. DeiT

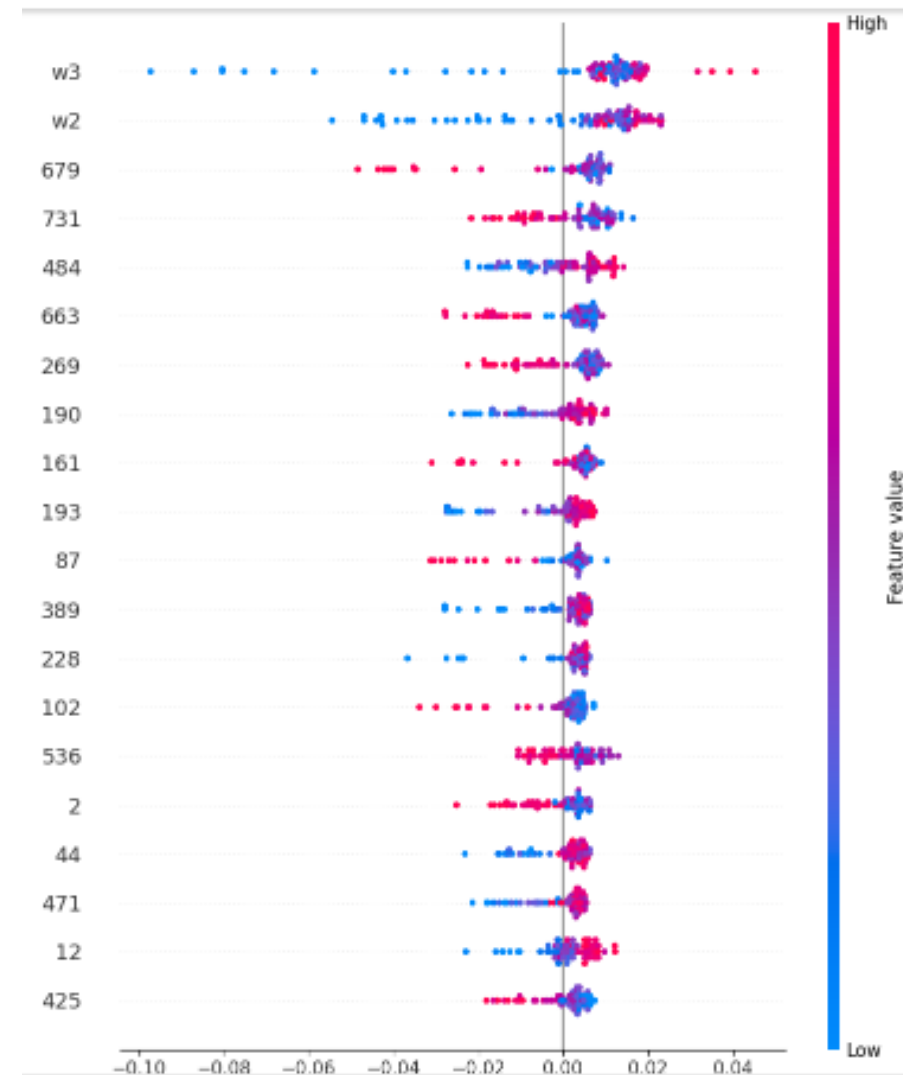
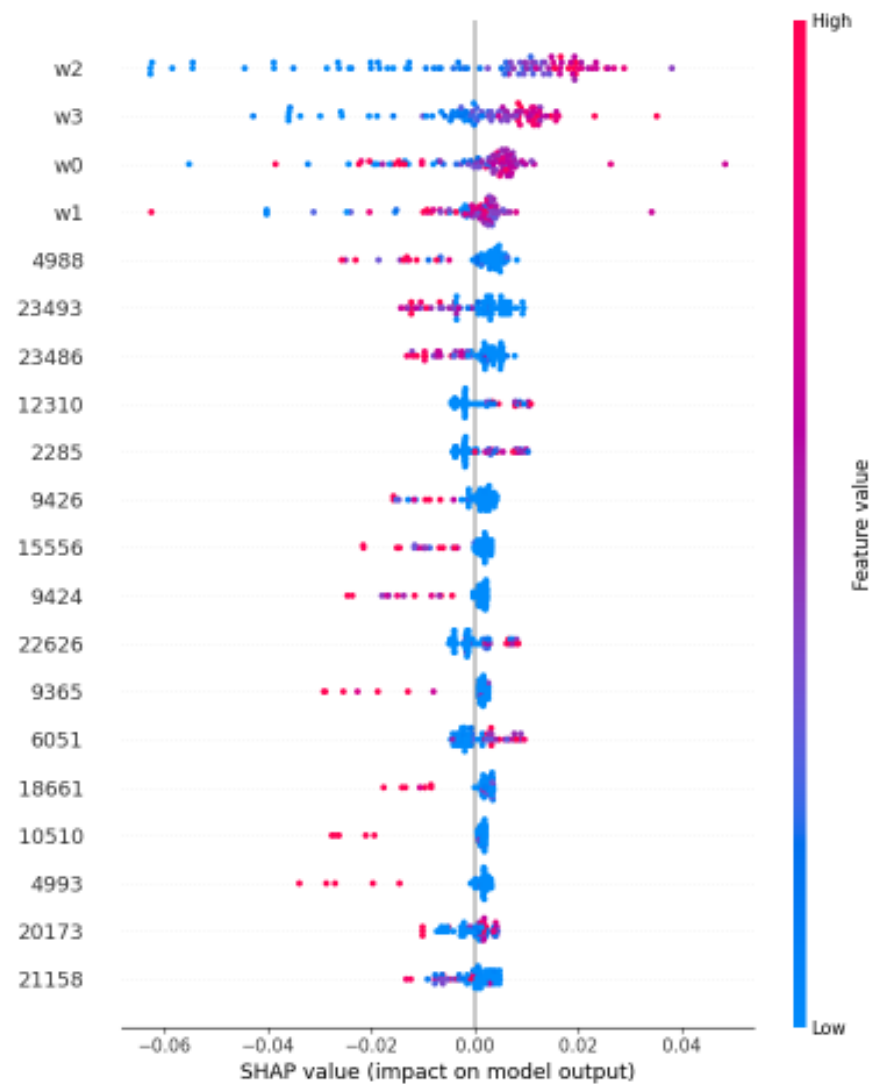
1



2



# SHAP (SHapley Additive exPlanations)





Top 5 images for embedding dimension 2



Top 5 images for embedding dimension 2

