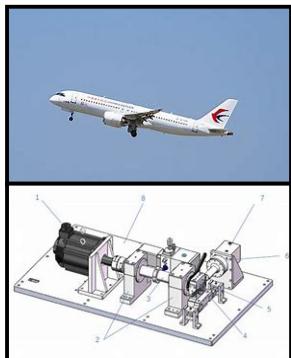
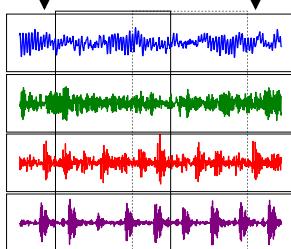


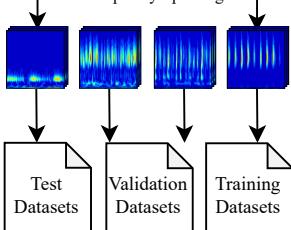
## Data Preparation



Time Domain Signals



Time Frequency Spectrogram



Test Datasets

Validation Datasets

Training Datasets

## Train Process

Pretraining-VGG19

Before ReLU4\_1  
Freeze

Encoder

Reference  
Machines



Tarin (All Samples)

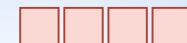
Monitored  
Machines



Normal Inner Outer Ball

Generate (Each Class)

PCASTNet



Machine  
Style



## Test Process

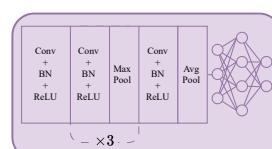
Generated  
Samples



Monitored  
Samples

Augmented  
Datasets

Train & Test



Simple CNN

N	125	1	0	5	95.42%
I	1	117	0	6	94.35%
O	0	4	118	4	93.65%
B	1	5	13	106	84.80%
Precision	98.43%	92.13%	90.08%	87.60%	92.09%
Recall	N	I	O	B	Confusion Matrix