Elevator anomaly detection

109700046 侯均頲
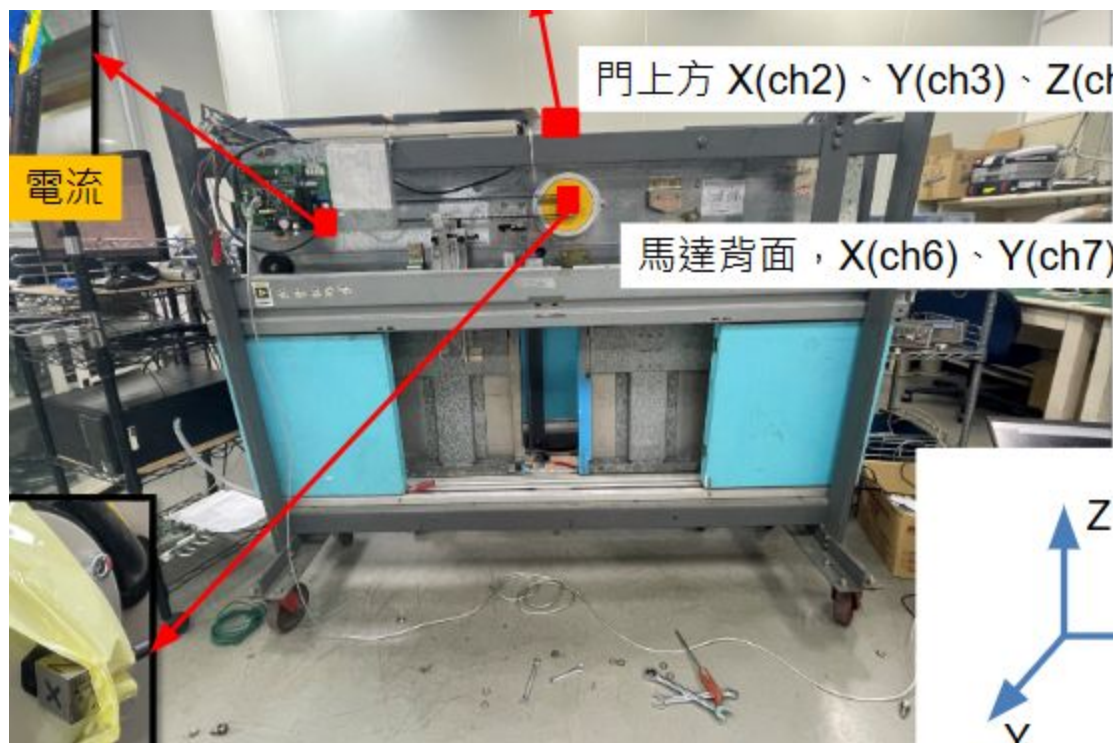
Car section

Machine room section

Lift car section

Layer door section

電流

門上方 X(ch2)、Y(ch3)、Z(ch4)

馬達背面，X(ch6)、Y(ch7)、Z(ch8)

Model selection

- existing anomaly detection frame work
- autoencoder
- anomaly transformer

AutoEncoder

(a) Training phase

(b) Fault detection phase
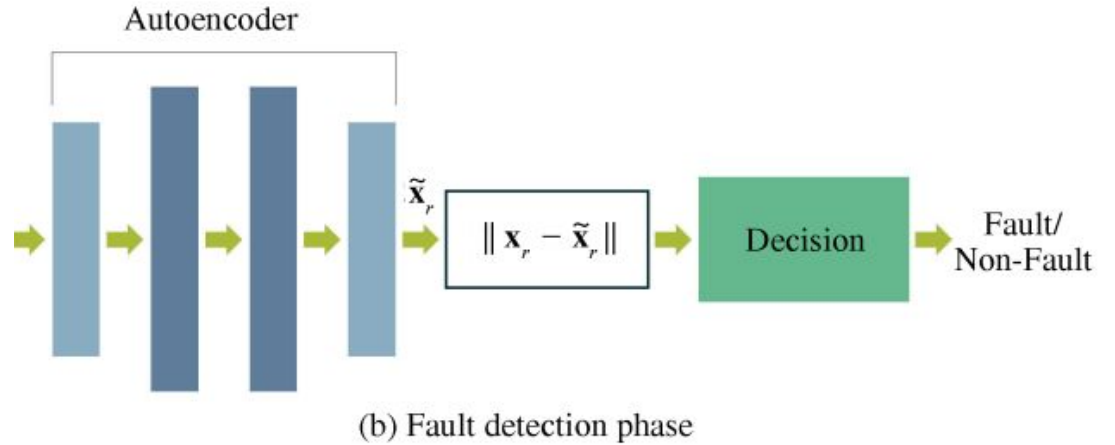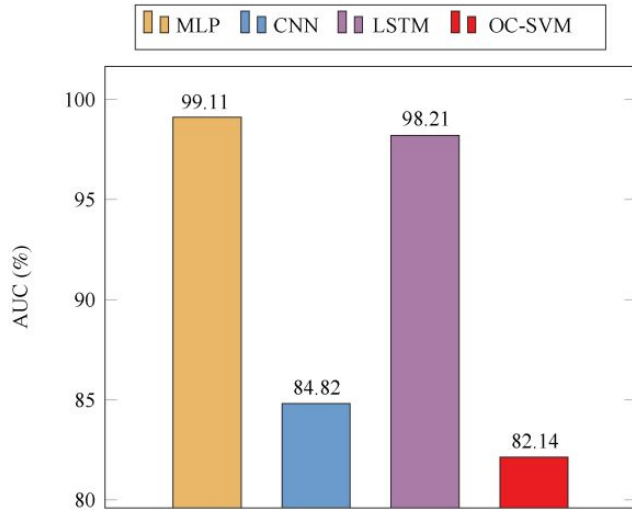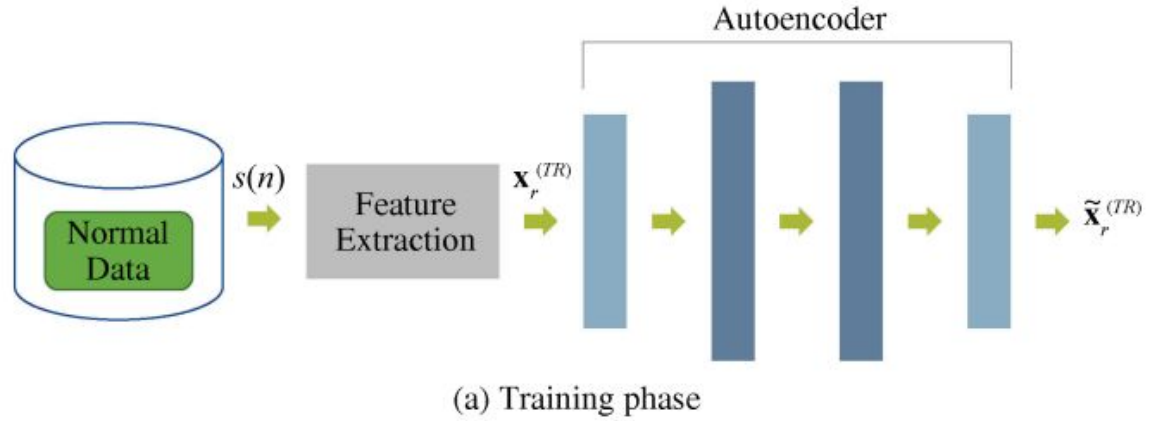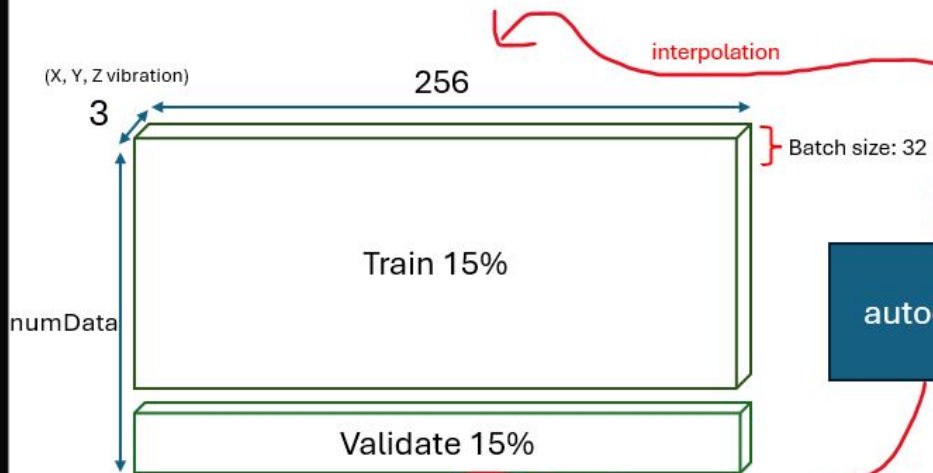
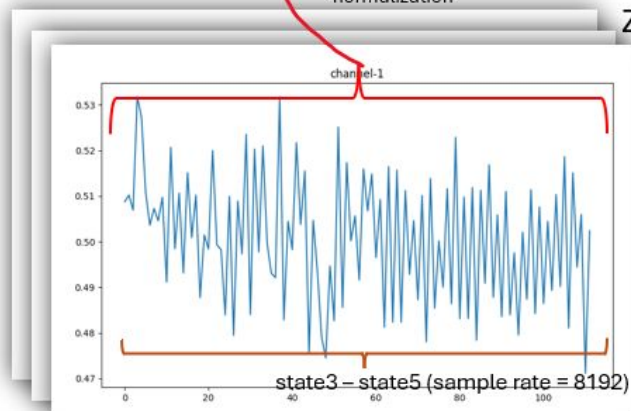Fig. 7. Results obtained for the different autoencoder topologies and the OC-

Input: x

Reconstructed x

interpolation

(X, Y, Z vibration)

256

Batch size: 32

numData

Train 15%

Validate 15%

autoencoder

(X, Y, Z vibration)

256

numData

Train 15%

Validate 15%
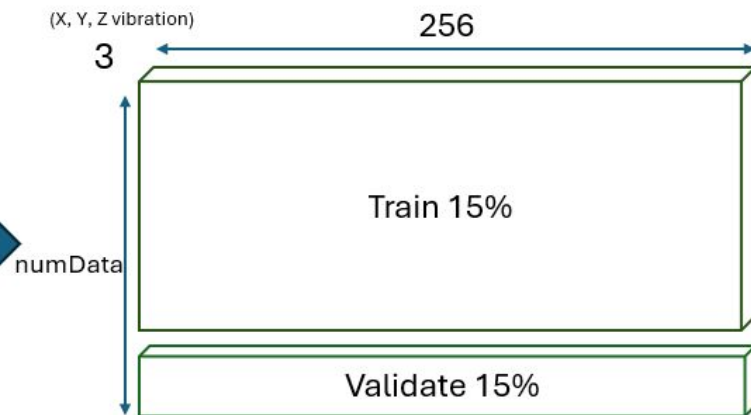
normalization

Z-vib
Y-vib
X-vib

numData x

channel-1

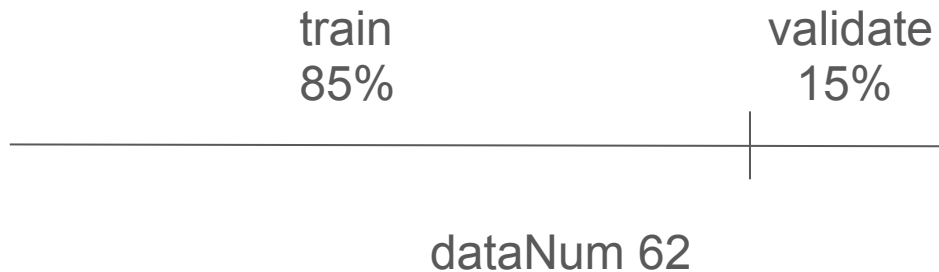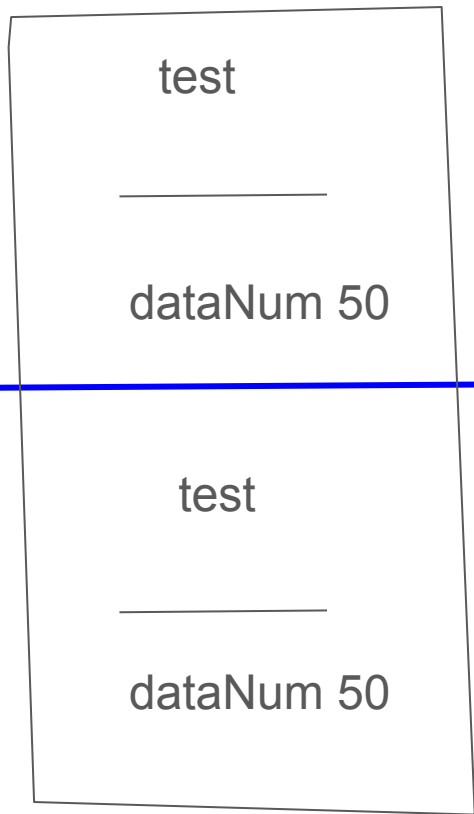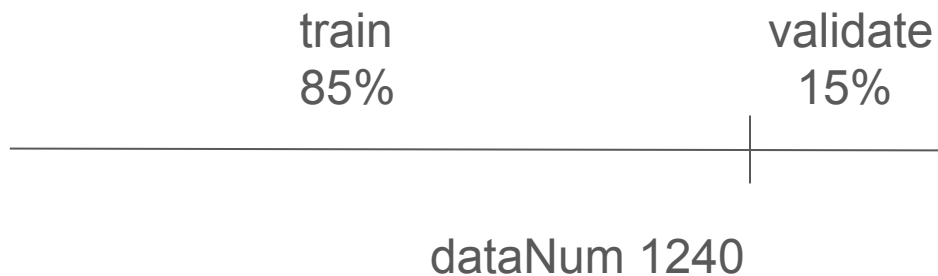state3 – state5 (sample rate = 8192)

Flatten (3*100) to calculate loss

```
loss = F.mse_loss(
    reconstructed_x.view(-1, channels * timeStamps),
    x.view(-1, channels * timeStamps),
    reduciton = 'sum')
```
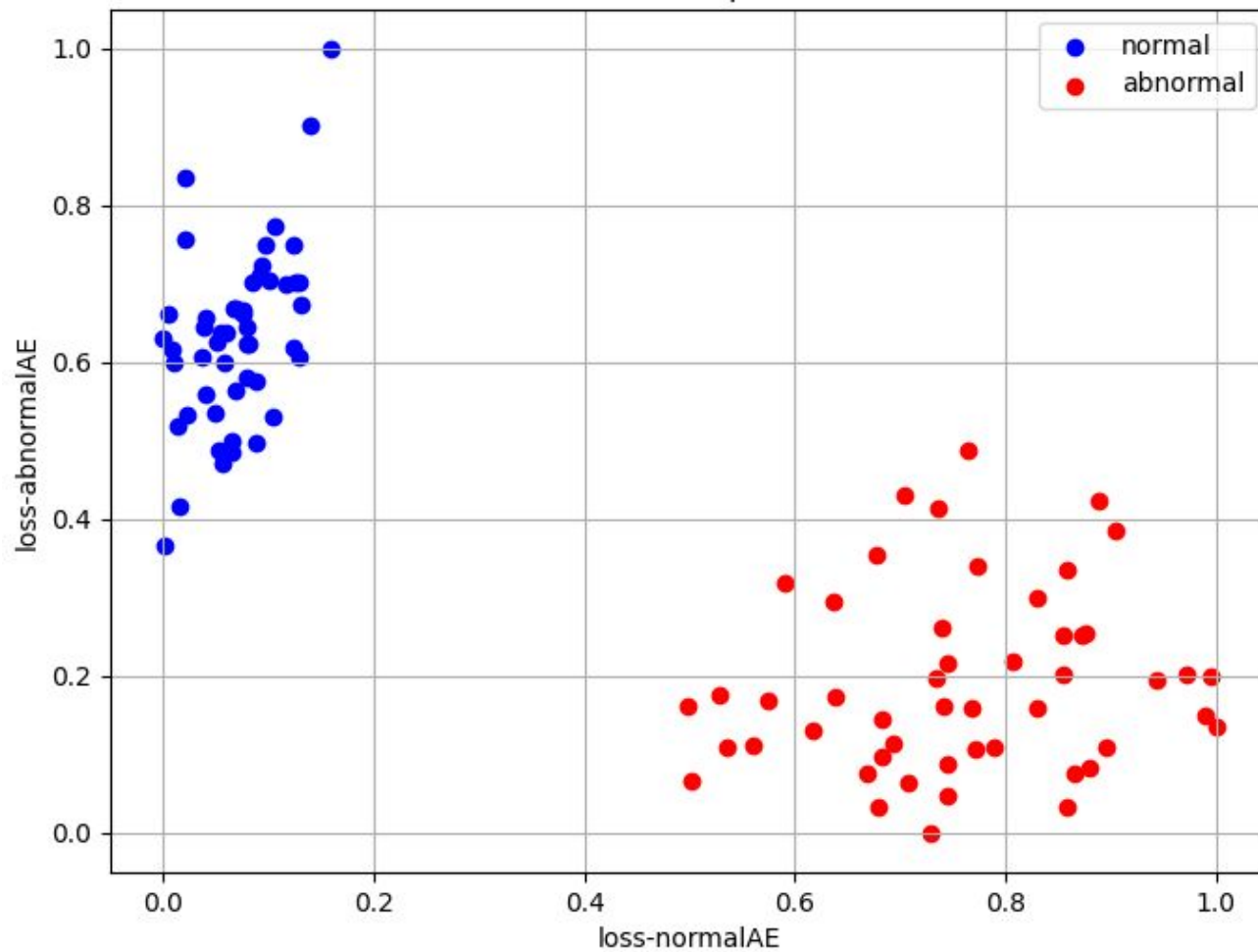
P.s. I weren't planned to use sliding window to cut the data, because I think ⌐‾‾⌐ part is just a complete pattern and the model should just analyze the whole pattern. Or maybe other ideas?

train
85%

validate
15%

test

dataNum 1240

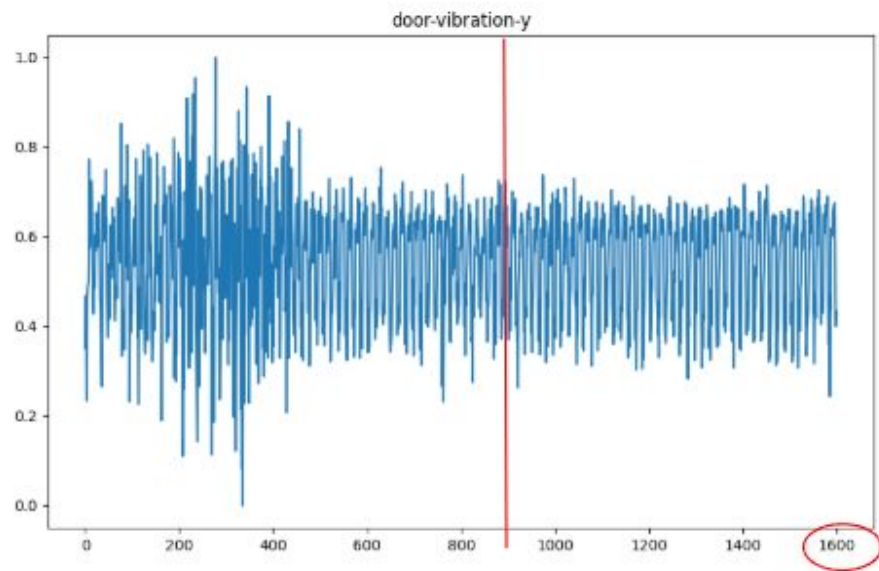dataNum 50

train
85%

validate
15%

test

dataNum 62

dataNum 50

Abnormal Data (0607) sampleRate 8192

conbine the two plots above

abnormal data

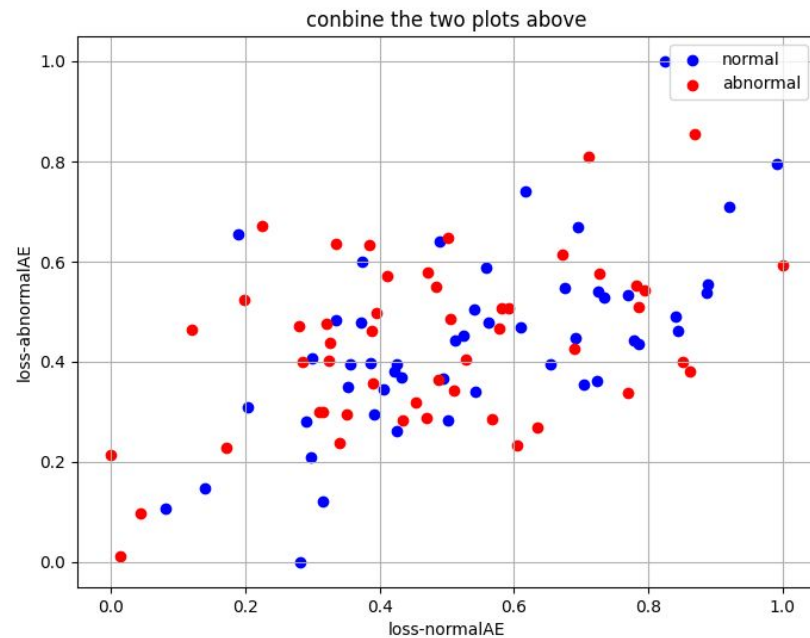normal data

door-vibration-y

door-vibration-y

sample rate = 128

channel 234

channel 567