**Conv1D**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param #

=================================================================

input\_1 (InputLayer) [(None, 521, 136)] 0

conv1d (Conv1D) (None, 521, 36) 58788

batch\_normalization (BatchN (None, 521, 36) 144

ormalization)

activation (Activation) (None, 521, 36) 0

global\_max\_pooling1d (Globa (None, 36) 0

lMaxPooling1D)

dense (Dense) (None, 1) 37

=================================================================

Total params: **58,969**

Trainable params: 58,897

Non-trainable params: 72

**Max AUC: 0.8447 (epoch 38)**

A picture containing shape

Description automatically generated

**Shape

Description automatically generated with low confidence**

**SimpleRNN**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param #

=================================================================

masking (Masking) (None, None, 136) 0

simple\_rnn (SimpleRNN) (None, 43) 7740

dense (Dense) (None, 1) 44

=================================================================

Total params: **7,784**

Trainable params: 7,784

Non-trainable params: 0

**Max AUC: 0.8272 (epoch 50)**

A picture containing graphical user interface

Description automatically generated

Shape

Description automatically generated

**LSTM**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param #

=================================================================

masking (Masking) (None, None, 136) 0

lstm (LSTM) (None, 43) 30960

dense (Dense) (None, 1) 44

=================================================================

Total params: **31,004**

Trainable params: 31,004

Non-trainable params: 0

**Max AUC: 0.8342 (epoch 42)**

A picture containing graphical user interface

Description automatically generated

A picture containing graphical user interface

Description automatically generated

**GRU**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param #

=================================================================

masking (Masking) (None, None, 136) 0

gru (GRU) (None, 43) 23349

dense (Dense) (None, 1) 44

=================================================================

Total params: **23,393**

Trainable params: 23,393

Non-trainable params: 0

**Max AUC: 0.8294 (epoch 49)**

A picture containing graphical user interface

Description automatically generated

Chart

Description automatically generated with low confidence

**FCN**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param #

=================================================================

input\_1 (InputLayer) [(None, 521, 136)] 0

conv1d (Conv1D) (None, 521, 128) 139392

batch\_normalization (BatchN (None, 521, 128) 512

ormalization)

activation (Activation) (None, 521, 128) 0

conv1d\_1 (Conv1D) (None, 521, 256) 164096

batch\_normalization\_1 (Batc (None, 521, 256) 1024

hNormalization)

activation\_1 (Activation) (None, 521, 256) 0

conv1d\_2 (Conv1D) (None, 521, 128) 98432

batch\_normalization\_2 (Batc (None, 521, 128) 512

hNormalization)

activation\_2 (Activation) (None, 521, 128) 0

global\_average\_pooling1d (G (None, 128) 0

lobalAveragePooling1D)

dense (Dense) (None, 1) 129

=================================================================

Total params: **404,097**

Trainable params: 403,073

Non-trainable params: 1,024

**Max AUC: 0.8365 (epoch 11)**

Chart, line chart

Description automatically generated

Chart, line chart

Description automatically generated

**ResNet**

* **Model summary:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param # Connected to

==================================================================================================

input\_1 (InputLayer) [(None, 521, 136)] 0 []

conv1d (Conv1D) (None, 521, 64) 69696 ['input\_1[0][0]']

batch\_normalization (BatchNorm (None, 521, 64) 256 ['conv1d[0][0]']

alization)

activation (Activation) (None, 521, 64) 0 ['batch\_normalization[0][0]']

conv1d\_1 (Conv1D) (None, 521, 64) 20544 ['activation[0][0]']

batch\_normalization\_1 (BatchNo (None, 521, 64) 256 ['conv1d\_1[0][0]']

rmalization)

activation\_1 (Activation) (None, 521, 64) 0 ['batch\_normalization\_1[0][0]']

conv1d\_3 (Conv1D) (None, 521, 64) 8768 ['input\_1[0][0]']

conv1d\_2 (Conv1D) (None, 521, 64) 12352 ['activation\_1[0][0]']

batch\_normalization\_3 (BatchNo (None, 521, 64) 256 ['conv1d\_3[0][0]']

rmalization)

batch\_normalization\_2 (BatchNo (None, 521, 64) 256 ['conv1d\_2[0][0]']

rmalization)

add (Add) (None, 521, 64) 0 ['batch\_normalization\_3[0][0]',

'batch\_normalization\_2[0][0]']

activation\_2 (Activation) (None, 521, 64) 0 ['add[0][0]']

conv1d\_4 (Conv1D) (None, 521, 128) 65664 ['activation\_2[0][0]']

batch\_normalization\_4 (BatchNo (None, 521, 128) 512 ['conv1d\_4[0][0]']

rmalization)

activation\_3 (Activation) (None, 521, 128) 0 ['batch\_normalization\_4[0][0]']

conv1d\_5 (Conv1D) (None, 521, 128) 82048 ['activation\_3[0][0]']

batch\_normalization\_5 (BatchNo (None, 521, 128) 512 ['conv1d\_5[0][0]']

rmalization)

activation\_4 (Activation) (None, 521, 128) 0 ['batch\_normalization\_5[0][0]']

conv1d\_7 (Conv1D) (None, 521, 128) 8320 ['activation\_2[0][0]']

conv1d\_6 (Conv1D) (None, 521, 128) 49280 ['activation\_4[0][0]']

batch\_normalization\_7 (BatchNo (None, 521, 128) 512 ['conv1d\_7[0][0]']

rmalization)

batch\_normalization\_6 (BatchNo (None, 521, 128) 512 ['conv1d\_6[0][0]']

rmalization)

add\_1 (Add) (None, 521, 128) 0 ['batch\_normalization\_7[0][0]',

'batch\_normalization\_6[0][0]']

activation\_5 (Activation) (None, 521, 128) 0 ['add\_1[0][0]']

conv1d\_8 (Conv1D) (None, 521, 128) 131200 ['activation\_5[0][0]']

batch\_normalization\_8 (BatchNo (None, 521, 128) 512 ['conv1d\_8[0][0]']

rmalization)

activation\_6 (Activation) (None, 521, 128) 0 ['batch\_normalization\_8[0][0]']

conv1d\_9 (Conv1D) (None, 521, 128) 82048 ['activation\_6[0][0]']

batch\_normalization\_9 (BatchNo (None, 521, 128) 512 ['conv1d\_9[0][0]']

rmalization)

activation\_7 (Activation) (None, 521, 128) 0 ['batch\_normalization\_9[0][0]']

conv1d\_10 (Conv1D) (None, 521, 128) 49280 ['activation\_7[0][0]']

batch\_normalization\_11 (BatchN (None, 521, 128) 512 ['activation\_5[0][0]']

ormalization)

batch\_normalization\_10 (BatchN (None, 521, 128) 512 ['conv1d\_10[0][0]']

ormalization)

add\_2 (Add) (None, 521, 128) 0 ['batch\_normalization\_11[0][0]',

'batch\_normalization\_10[0][0]']

activation\_8 (Activation) (None, 521, 128) 0 ['add\_2[0][0]']

global\_average\_pooling1d (Glob (None, 128) 0 ['activation\_8[0][0]']

alAveragePooling1D)

dense (Dense) (None, 1) 129 ['global\_average\_pooling1d[0][0]'

]

==================================================================================================

**Total params: 584,449**

Trainable params: 581,889

Non-trainable params: 2,560

**Max AUC: 0.8297 (epoch 12)**

Chart, line chart

Description automatically generated

Chart

Description automatically generated