CNN-model

\*This model gives plots, after initial test with epochs = 10, epochs = 6 was determined as the optimal epochs size.

Vocab\_size fit to data, maxlen = 100, num\_filters = 128, embedding\_dim = 100, kernel\_size =5.

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 99.70 | 83.35 | 10 | 10\* |
| 98.29 | 82.79 | 16 | 6 |
| 99.75 | 83.47 | 16 | 6 |
| 99.71 | 82.46 | 100 | 6 |

Using maxlen and vocab size parameters fit to the data, num\_filters = 128, embedding\_dim = 100, kernel\_size =5; attempt2\_CNN\_modified

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 99.87 | 87.76 | 16 | 6 |
| 99.90 | 87.33 | 16 | 10 |
| 99.93 | 86.94 | 32 | 9 |
| 99.75 | 86.98 | 16 | 9 |

Using GloVe embeddings

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 99.87 | 87.76 | 16 | 6 |
| 99.90 | 87.33 | 16 | 10 |
| 99.93 | 86.94 | 32 | 9 |
| 99.75 | 86.98 | 16 | 9 |

CNN-model with hyper-parametrization

Parameters: ‘vocab\_size’ = 5000, ‘maxlen’ = 100, ‘embedding\_dim’ = 50.

Fitting 10 folds for 5 iterations for the grid search.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs | num\_filters | kernel\_size |
| 82.44 | 81.82 | 8 | 6 | 32 | 5 |
| 82.90 | 83.37 | 16 | 6 | 128 | 3 |
| 83.21 | 82.85 | 100 | 6 | 32 | 3 |

Using parameters fit to the data (maxlen = 2202 and vocab size = 192727 of data)- under attempt2\_CNN\_modified

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs | num\_filters | kernel\_size | num\_folds: num\_iters |
| 86.64 | 86.39 | 16 | 6 | 64 | 7 | 4:4 |
| 86.90 | 86.39 | 16 | 9 | 32 | 5 | 4:5 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Using GloVe embeddings

Using parameters fit to the data (maxlen = 2202 and vocab size = 192727 of data)- embedding dim = 100

Fitting 10 folds for 5 iterations for the grid search.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs | num\_filters | kernel\_size | num\_folds: num\_iters |
| 85.51 | 85.66 | 16 | 9 | 64 | 5 | 4:4 |
|  |  | 32 | 15 |  |  | 10:5 |
|  |  |  |  |  |  |  |

Stacked CNN-model

Using maxlen and vocab size parameters fit to the data, num\_filters = 32, embedding\_dim = 100, kernel\_size is 4, 6, 8 in each channel respectively.

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 99.7701 | 87.9620 | 16 | 4 |
| 99.8568 | 89.1150 | 100 | 4 |
| 99.9133 | 89.3862 | 32 | 6 |
| 99.9209 | 88.8098 | 100 | 6 |
| 99.6270 | 86.7752 | 16 | 6 |
| 99.8342 | 89.0132 | 32 | 6 |
| 99.9359 | 89.0471 | 64 | 9 |
| 99.9095 | 89.0471 | 32 | 5 |
| 99.9284 | 87.5890 | 32 | 20 |

Using GloVe embeddings

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 56.6767 | 57.6128 | 16 | 6 |

With only one stack

|  |  |  |  |
| --- | --- | --- | --- |
| Train Accuracy | Test Accuracy | Batch Size | Epochs |
| 99.917108 | 88.232 | 32 | 6 |

Final

**Multi-channel (3)-** Epoch = 25

Text

Description automatically generated

Epoch = 2

Text

Description automatically generated

**Multi-channel (3) GloVe-** Epoch = 20 (16batch size)

**A picture containing text

Description automatically generated**

Epoch = 30

A picture containing text

Description automatically generated

Epoch = 50

A picture containing text

Description automatically generated

**Multi-channel (2)-** Epoch = 2

Text

Description automatically generated

Epoch = 20

Text

Description automatically generated

**Standard (no max)-** Epoch = 6 (16 batch)

Text

Description automatically generated

Epoch = 4

Text

Description automatically generated

**Standard (max 100)-** Epoch = 6 (16 batch)

Text

Description automatically generated

Epoch = 20

Text

Description automatically generated

Epoch = 50

Text

Description automatically generated

**Parameter Tuning (maxlen 100)-** Epochs =6 (Batch 16) 4folds 4 iterations

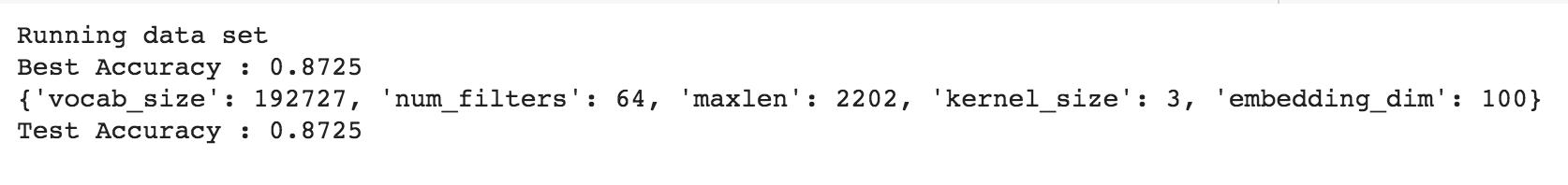
Text

Description automatically generated

A picture containing text

Description automatically generated

**Parameter Tuning (maxlen 100)-** Epochs =6 (Batch 16) 4folds 4 iterations



A picture containing text

Description automatically generated

**Parameter Tuning (GloVe)-** Epochs = 10 (16 Batch) 4cv/5iter

A picture containing text

Description automatically generated

A picture containing text

Description automatically generated

**Standard (GloVe)-** Epoch = 50 (16 batch)

Text

Description automatically generated