

LIST OF FIGURES

2.1	Deep Learning	9
2.2	The standard architecture of CNN [1]	12
2.3	Bi-LSTM Architecture	14
2.4	CNN + BiLSTM General Architecture	17
3.1	Block Diagram	19
3.2	System Model	21
3.3	Sample of Data	22
3.4	System Model Architecture	26
4.1	Average test accuracy on each data split	39
4.2	Training and validation result on sample 3c (highest performance) .	41
4.3	Training and validation result on sample 5a (lowest performance) .	41
4.4	Confusion Metrics 3c	42
4.5	Confusion Metrics 5a	44
4.6	Accuracy results using augmentation data	46
4.7	Training Validation Accuracy and loss 5a with Data Augmentation .	48
4.8	Confusion metrics 5a with Data Augmentation	49
4.9	Training Validation Accuracy and loss 3c with Data Augmentation .	50
4.10	Confusion metrics 3c with Data Augmentation	51