



2.2.4	<i>Artificial Intelligence</i>	19
2.2.5	<i>Deep Learning</i>	20
2.2.5.1	<i>Artificial Neural Network</i>	20
2.2.5.2	<i>Forward Propagation</i>	21
2.2.5.3	<i>Back-Propagation</i>	21
2.2.5.4	<i>Loss Function</i>	23
2.2.5.5	<i>Optimizer</i>	24
2.2.5.6	<i>1D Convolutional Neural Network</i>	27
2.2.5.7	<i>Temporal Convolutional Network (TCN)</i>	28
2.2.5.8	<i>Long Short-Term Memory (LSTM)</i>	28
2.2.5.9	<i>Bidirectional Long Short-Term Memory (BiLSTM)</i>	29
2.2.5.10	<i>ALSTM-FCN</i>	31
2.2.6	Hyperparameter pada Deep Learning	33
2.2.6.1	Kernel Size	33
2.2.6.2	Jumlah Filter (<i>Filter Number</i>).....	33
2.2.6.3	<i>Stacks Number</i>	34
2.2.6.4	<i>Activation Functions</i>	34
2.2.6.5	<i>Batch Size</i>	35
2.2.6.6	<i>Epochs</i>	35
2.2.6.7	<i>Dropout Rate</i>	36
2.2.6.8	<i>Dilation Rate</i>	36
2.2.7	<i>Hyperparameter Optimization</i>	36
2.2.7.1	<i>Bayesian Optimization</i>	37
2.2.7.2	<i>Hyperband</i>	38
2.2.8	Evaluasi Model	40
2.2.8.1	Metode Evaluasi	40
2.2.8.2	<i>Evaluation Matrix</i>	41
2.2.9	Uji Statistika.....	42
2.2.9.1	<i>Shapiro-Wilk Test</i>	44
2.2.9.2	<i>Friedman Test</i>	44
2.2.9.3	<i>Wilcoxon Signed-Rank Test</i>	45
2.2.10	Perhitungan Beban Komputasi (GFLOPs)	46
2.3	Hipotesis Statistika.....	47
2.4	Analisis Perbandingan Metode	47
BAB III	Metode Penelitian.....	49
3.1	Alat dan Bahan Tugas akhir	49
3.1.1	Alat Tugas akhir.....	49
3.1.2	Bahan Tugas akhir	50
3.2	Metode yang Digunakan.....	51



3.3	Alur Tugas Akhir	52
3.3.1	Akuisi Dataset	52
3.3.2	<i>Preprocessing</i> Dataset	53
3.3.3	<i>Feature Engineering</i>	53
3.3.4	Agregasi Dataset	54
3.3.5	<i>Feature Extraction</i>	56
3.3.6	Pembuatan Model ALSTM-FCN.....	56
3.3.7	Proses HPO (<i>Hyperband</i>).....	57
3.3.8	Evaluasi dan Analisis Hasil.....	58
BAB IV	Hasil dan Pembahasan.....	60
4.1	<i>Hyperparameter Optimization Menggunakan Metode Hyperband</i>	60
4.1.1	Evaluasi dengan Teknik LOVO	62
4.1.1.1	Hasil <i>F1-Score</i>	62
4.1.1.2	Hasil <i>Confusion Matrix</i>	65
4.1.1.3	<i>Fixation</i>	66
4.1.1.4	<i>Saccade</i>	67
4.1.1.5	<i>Smooth Pursuit</i>	69
4.1.1.6	<i>Noise</i>	70
4.1.2	Evaluasi Beban Komputasi dan Jumlah Parameter	72
4.2	Perbandingan Hasil Penelitian dengan Hasil Terdahulu	72
4.3	Diskusi.....	74
4.3.1	Signifikansi <i>Hyperparameter Optimization</i>	74
4.3.2	Keterbatasan Metode yang Diusulkan	74
4.3.3	Implikasi Penelitian	75
BAB V	Kesimpulan dan Saran.....	76
5.1	Kesimpulan.....	76
5.2	Saran.....	76
DAFTAR PUSTAKA	78
LAMPIRAN	L-1
L.1	Raw Dataset Preprocessing.....	L-1
L.2	Dataset Preparation	L-3