

DAFTAR ISI

LEMBAR PENGESAHAN	ii
LEMBAR PERNYATAAN ORISINALITAS	iii
ABSTRAK	iv
ABSTRACT	v
KATA PENGANTAR.....	vi
UCAPAN TERIMA KASIH	vii
DAFTAR ISI.....	ix
DAFTAR GAMBAR.....	xii
DAFTAR TABEL	xiii
BAB I PENDAHULUAN.....	1
1.1. Latar Belakang Masalah.....	1
1.2. Rumusan Masalah	2
1.3. Tujuan Penelitian.....	2
1.4. Manfaat Penelitian.....	2
1.5. Batasan Masalah.....	3
1.6. Metode Penelitian.....	3
BAB II TINJAUAN PUSTAKA.....	5
2.1. Diabetes Retinopati	5
2.1.1. NPDR (<i>Non-Proliferative Diabetic Retinopathy</i>).....	6
2.1.2. PDR (<i>Proliferative Diabetic Retinopathy</i>)	6
2.2. Citra Digital.....	6
2.2.1. Citra RGB.....	7
2.2.2. Citra <i>Grayscale</i>	8
2.3. <i>Deep Learning</i>	8

2.4. <i>Convolutional Neural Network (CNN)</i>	9
2.4.1. <i>Convolutional Layer</i>	9
2.4.2. <i>Pooling Layer</i>	10
2.4.3. Aktivitas Rel-U	11
2.4.4. <i>Fully Connected Layer</i>	11
2.4.5. <i>Softmax</i>	12
2.4.6. <i>Optimizer</i>	12
2.4.6.1. <i>Sthochastic Gradient Descent (SGD)</i>	12
2.4.6.2. <i>Root Mean Square Propagation (RMSprop)</i>	13
2.4.6.3. <i>Adaptive Moment Estimation (Adam)</i>	13
2.4.6.4. <i>Nesterov Accelerated Adaptive Moment Estimation (Nadam)</i>	14
2.4.6.5. <i>Adaptive Gradient Algorithm (Adagrad)</i>	14
2.4.6.6. AdaDelta	14
2.5. Arsitektur VGG-16.....	14
BAB III PERANCANGAN SISTEM	16
3.1. Desain Sistem	16
3.2. Data <i>Preparation</i>	18
3.3. <i>Pre-processing</i>	18
3.4. Pelatihan Model.....	19
3.5. Performansi Sistem	20
3.5.1. <i>Confussion Matrix</i>	20
3.5.2. Akurasi.....	21
3.5.3. <i>Loss</i>	21
3.5.4. Presisi.....	21
3.5.5. <i>Recall</i>	22
3.5.6. <i>F1 Score</i>	22
BAB IV HASIL DAN ANALISIS	24
4.1. Pengujian Sistem	24
4.2. Rancangan Pengujian	24
4.3. Pengujian Data <i>Size Citra</i>	24
4.3.1. Analisis Hasil Pengujian Data <i>Size Citra</i>	25

4.4. Pengujian <i>Optimizer</i>	27
4.4.1. Analisis Hasil Pengujian <i>Optimizer</i>	28
4.5. Pengujian <i>Learning Rate</i>	30
4.5.1. Analisis Hasil Pengujian <i>Learning Rate</i>	31
4.6. Pengujian <i>Epoch</i>	32
4.6.1. Analisis Hasil Pengujian <i>Epoch</i>	33
BAB V KESIMPULAN DAN SARAN	36
5.1. Kesimpulan.....	36
5.2. Saran	36
DAFTAR PUSTAKA.....	37
LAMPIRAN A	40
LAMPIRAN B	51