

## DAFTAR ISI

HALAMAN JUDUL .....	i
PERNYATAAN BEBAS PLAGIARISME .....	ii
HALAMAN PENGESAHAN SKRIPSI.....	iii
KATA PENGANTAR .....	v
DAFTAR TABEL .....	viii
DAFTAR GAMBAR .....	ix
DAFTAR LAMBANG DAN SINGKATAN.....	xi
INTISARI.....	xii
ABSTRACT .....	xiii
BAB I PENDAHULUAN .....	1
I.1. Latar Belakang.....	1
I.2. Perumusan Masalah .....	3
I.2.1. Batasan Masalah .....	3
I.3. Tujuan Penelitian .....	3
I.4. Manfaat Penelitian .....	5
BAB II TINJAUAN PUSTAKA .....	6
BAB III DASAR TEORI .....	8
III.1. Pencitraan Digital.....	8
III.2. <i>Artificial Intelligence</i> .....	9
III.3. <i>Deep Learning</i> .....	10
III.4. <i>Convolutional Neural Network</i> .....	11
III.5. Proses Pelatihan Neural Network.....	14
III.6. Transfer Learning.....	15
III.7. Model EfficientNetV2.....	17
III.8. <i>Hyperparameter</i> .....	18
III.9. <i>Learning Rate</i> .....	18
III.10. Algoritma <i>Optimizer</i> .....	19
III.11. Fungsi Aktivasi .....	21
III.12. Fungsi <i>Loss</i> .....	22
III.13. <i>Epoch</i> dan <i>Batch Size</i> .....	23
III.14. Performa Model.....	23



III.14.1. <i>Confusion Matrix</i> .....	23
III.14.2. Kurva ROC.....	24
III.14.3. Area PRC .....	24
III.14.4. Skor F1, Presisi, dan <i>Recall</i> .....	25
III.15. Hipotesis .....	26
BAB IV PELAKSANAAN PENELITIAN.....	27
IV.1. Alat dan Bahan Penelitian .....	27
IV.1.1. Alat Penelitian.....	27
IV.1.2. Bahan Penelitian.....	28
IV.2. Tata Laksana Penelitian.....	31
IV.3. Analisis Hasil Penelitian .....	32
IV.3.1. Data Pre-Processing .....	32
IV.3.2. Data Augmentation.....	32
IV.3.3. Pelatihan Model .....	33
IV.3.4. Evaluasi Model.....	34
IV.3.5. Fine-Tuning.....	34
BAB V HASIL DAN PEMBAHASAN.....	36
V.1. <i>Hyperparameter</i> dan Variasi.....	36
V.2. <i>Optimizer Adam</i> .....	36
V.3. <i>Optimizer Nadam</i> .....	39
V.4. <i>Optimizer RMSprop</i> .....	41
V.5. Perbandingan Pelatihan <i>Optimizer</i> .....	43
V.6. Perbandingan Validasi <i>Optimizer</i> .....	45
V.7. Pembahasan <i>Optimizer</i> .....	46
V.8. Variasi <i>Learning Rate Nadam</i> .....	47
V.9. Model Akhir.....	50
BAB VI KESIMPULAN DAN SARAN .....	53
VI.1. Kesimpulan.....	53
VI.2. Saran.....	54
DAFTAR PUSTAKA .....	55

