

DAFTAR ISI

HALAMAN PENGESAHAN.....	ii
PERNYATAAN BEBAS PLAGIASI	iii
HALAMAN MOTO DAN PERSEMBAHAN	iv
PRAKATA.....	v
DAFTAR ISI.....	vii
DAFTAR TABEL.....	x
DAFTAR GAMBAR	xi
DAFTAR LAMPIRAN.....	xii
INTISARI	xiii
ABSTRACT.....	xiv
BAB I PENDAHULUAN	1
1.1. Latar Belakang.....	1
1.2. Pembatasan Masalah.....	5
1.3. Tujuan Penelitian.....	5
1.4. Tinjauan Pustaka	6
1.5. Metodologi Penelitian.....	9
1.6. Sistematika Penulisan	9
BAB II LANDASAN TEORI	11
2.1 <i>Financial Distress</i>	11
2.2 Laporan Keuangan.....	13
2.3 Rasio Keuangan.....	14
2.4 Vektor.....	17
2.4.1 Operasi vektor	18
2.4.2 <i>Norm</i> Vektor.....	19
2.4.3 Jarak <i>Euclidean</i>	19
2.4.4 <i>Dot Product</i>	20
2.5 Matriks.....	22
2.5.1 Operasi Matriks	23
2.5.2 Jenis-Jenis Matriks	23
2.5.3 <i>Transpose</i> Matriks.....	25
2.5.4 Determinan Matriks	26
2.5.5 Invers Matriks	26
2.6 Pra-Pemrosesan Data.....	28

2.6.1	<i>Data Scaling</i>	29
2.6.2	<i>Data Splitting</i>	30
2.7	<i>Synthetic Minority Oversampling Technique (SMOTE)</i>	31
2.8	Operator Diferensial	32
2.9	Lagrange Multiplier.....	32
2.10	<i>Data Mining</i>	35
2.11	<i>Machine Learning</i>	36
2.12	Analisis Klasifikasi.....	38
2.13	<i>Hyperparameter</i>	38
2.14	Ukuran Evaluasi	40
BAB III PERBANDINGAN KLASIFIKASI <i>FINANCIAL DISTRESS</i> MENGGUNAKAN ANN, SVM, DAN <i>HYBRID ANN-SVM</i>		43
3.1	<i>Artificial Neural Network</i>	43
3.1.1	Sistem Kerja Sel Syaraf Otak Manusia	43
3.1.2	Sistem Kerja <i>Neural Network</i>	45
3.1.3	Komponen <i>Artificial Neural Network</i>	46
3.1.4	Arsitektur <i>Artificial Neural Network</i>	47
3.1.5	Lapisan <i>Dense (Fully Connected)</i>	49
3.1.6	Fungsi Aktivasi	50
3.1.7	<i>Dropout Layer</i>	56
3.1.8	<i>Learning rate</i>	56
3.1.9	Fungsi <i>Categorical Cross Entropy</i>	58
3.1.10	<i>Adam Optimizer</i>	59
3.1.11	Algoritma Backpropagation ANN	64
3.2	<i>Support Vector Machine</i>	70
3.2.1	<i>Linearly Separable Data</i> pada SVM.....	72
3.2.2	<i>Soft Margin</i>	75
3.2.3	<i>Nonlinearly Separable Data</i> pada SVM	76
3.3	<i>Hybrid Artificial Neural Network dan Support Vector Machine</i>	80
BAB IV STUDI KASUS		82
4.1	Deskripsi Data	82
4.2	<i>Pre-processing Data</i>	92
4.2.1	<i>Data Scaling</i>	92
4.2.2	<i>Synthetic Minority Oversampling Technique (SMOTE)</i>	92
4.2.3	<i>Data Splitting</i>	93

4.3	<i>Artificial Neural Network (ANN)</i>	94
4.3.1	Pembentukan Model ANN.....	94
4.3.2	<i>Hyperparameter Tuning</i>	96
4.3.3	<i>Summary Model ANN</i>	97
4.3.4	Hasil Pelatihan Model ANN	98
4.4	<i>Support Vector Machine (SVM)</i>	101
4.4.1	<i>Hyperparameter Tuning</i>	102
4.4.2	<i>Confusion Matrix SVM</i>	103
4.5	<i>Hybrid Artificial Neural Network (ANN)-Support Vector Machine (SVM)</i> . 105	
4.5.1	<i>Confusion Matrix Hybrid Model ANN-SVM</i>	106
4.6	Perbandingan Performa Model Klasifikasi.....	108
BAB V PENUTUP		110
5.1	Kesimpulan.....	110
5.2	Saran	111
DAFTAR PUSTAKA		112
LAMPIRAN.....		117
Lampiran 1. Data Rasio Keuangan		117
Lampiran 2. <i>Syntax</i> Program dengan SMOTE.....		120
Lampiran 3. <i>Syntax</i> Program Tanpa SMOTE		136