

**ANALISIS PENGARUH SENTIMEN MASYARAKAT  
INDONESIA DI MEDIA SOSIAL X TERHADAP MODEL  
PREDIKSI HARGA SAHAM ALFAMART  
MENGUNAKAN ALGORITMA *DEEP LEARNING***

**SKRIPSI**

Diajukan untuk memenuhi sebagian syarat untuk memperoleh  
gelar Sarjana Teknik Mekatronika dan Kecerdasan Buatan



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UNIVERSITAS PENDIDIKAN INDONESIA  
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### **ANALISIS PENGARUH SENTIMEN MASYARAKAT INDONESIA DI MEDIA SOSIAL X TERHADAP MODEL PREDIKSI HARGA SAHAM ALFAMART MENGGUNAKAN ALGORITMA DEEP LEARNING**

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat  
memperoleh gelar Sarjana Teknik pada Program Studi Mekatronika dan  
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# ANALISIS PENGARUH SENTIMEN MASYARAKAT INDONESIA DI MEDIA SOSIAL X TERHADAP MODEL PREDIKSI HARGA SAHAM ALFAMART MENGGUNAKAN ALGORITMA *DEEP LEARNING*

## ABSTRAK

Pergerakan harga saham dipengaruhi oleh berbagai faktor, termasuk kondisi fundamental perusahaan, tren pasar, serta opini publik. Seiring meningkatnya penggunaan media sosial, analisis sentimen publik menjadi pendekatan yang semakin relevan dalam bidang prediksi harga saham. Penelitian ini bertujuan untuk menguji apakah data sentimen masyarakat Indonesia di media sosial X (sebelumnya Twitter) dapat mempengaruhi akurasi model prediksi harga saham PT Sumber Alfaria Trijaya Tbk (AMRT). Hal ini didasarkan pada temuan dari beberapa studi sebelumnya yang menunjukkan bahwa sentimen publik dapat meningkatkan performa prediksi harga saham perusahaan-perusahaan besar seperti Google, Apple, Tesla, dan Telkom. Penelitian ini membangun model prediksi harga saham menggunakan tiga algoritma *deep learning* yang berbeda, yaitu *Recurrent Neural Network* (RNN), *Long Short-Term Memory* (LSTM), dan *Extreme Learning Machine* (ELM). Model dikembangkan dalam dua skenario: pertama tanpa data sentimen, dan kedua dengan penambahan fitur sentimen publik sebagai variabel *input*. Data sentimen diperoleh melalui proses *crawling* dari media sosial X, kemudian diklasifikasi menggunakan tiga pendekatan, yakni *Lexicon-Based*, *Neural Network*, dan *pre-trained BERT*. Model BERT dipilih sebagai pendekatan terbaik berdasarkan evaluasi F1-score dan digunakan untuk memberi label pada seluruh *dataset* sentimen. Hasil pengujian menunjukkan bahwa meskipun integrasi data sentimen dapat menambah konteks dalam prediksi, namun pengaruhnya terhadap peningkatan akurasi model tidak selalu signifikan. Algoritma ELM menunjukkan performa terbaik secara keseluruhan dengan nilai  $R^2$  mencapai 89,15% pada skenario tanpa sentimen. Penambahan fitur sentimen justru memberikan penurunan performa pada beberapa algoritma. Temuan ini menegaskan bahwa meskipun data sentimen berpotensi memperkaya model prediktif, penerapannya pada sektor ritel seperti AMRT membutuhkan pengolahan yang lebih selektif dan kontekstual.

**Kata Kunci:** Prediksi Harga Saham, Sentimen Publik, Media Sosial X, RNN, LSTM, ELM, *Deep Learning*, AMRT.

# ***ANALYZING THE IMPACT OF INDONESIAN PUBLIC SENTIMENT ON SOCIAL MEDIA X ON ALFAMART STOCK PRICE PREDICTION USING DEEP LEARNING ALGORITHM***

## ***ABSTRACT***

*Stock price movements are influenced by various factors, including a company's fundamentals, market trends, and public opinion. With the increasing use of social media, public sentiment analysis has become an increasingly relevant approach in stock price prediction. This study aims to examine whether Indonesian public sentiment on social media platform X (formerly Twitter) can affect the accuracy of stock price prediction models for PT Sumber Alfaria Trijaya Tbk (AMRT). The research is motivated by previous studies that demonstrate the use of sentiment data can enhance stock prediction performance for companies such as Google, Apple, Tesla, and Telkom. This research develops stock price prediction models using three different deep learning algorithms: Recurrent Neural Network (RNN), Long Short-Term Memory (LSTM), and Extreme Learning Machine (ELM). The models are evaluated in two scenarios: first, without sentiment data, and second, with the inclusion of public sentiment features as additional input variables. Sentiment data were collected through a crawling process on social media X and classified using three methods: Lexicon-Based, Neural Network, and a pre-trained BERT model. The BERT model was selected as the best classifier based on F1-score evaluation and was used to label the entire sentiment dataset. The results indicate that while the integration of sentiment data can add contextual value to the prediction, its impact on improving model accuracy is not always significant. The ELM algorithm achieved the highest performance overall, with an  $R^2$  score of 89.15% in the scenario without sentiment. In some cases, the inclusion of sentiment features even reduced model performance. These findings suggest that although public sentiment data has potential to enrich predictive models, its application in the retail sector such as AMRT requires more selective and context-aware preprocessing.*

**Keywords:** *Stock Price Prediction, Public Sentiment, Social Media X, RNN, LSTM, ELM, Deep Learning, AMRT.*

## DAFTAR ISI

|                                                      |      |
|------------------------------------------------------|------|
| LEMBAR HAK CIPTA .....                               | ii   |
| LEMBAR KEASLIAN SKRIPSI DAN ANTI PLAGIARISME .....   | iv   |
| ABSTRAK .....                                        | v    |
| <i>ABSTRACT</i> .....                                | vi   |
| DAFTAR ISI .....                                     | vii  |
| DAFTAR GAMBAR .....                                  | x    |
| DAFTAR TABEL.....                                    | xi   |
| DAFTAR KODE PROGRAM .....                            | xii  |
| Daftar Pustaka .....                                 | xiii |
| BAB I PENDAHULUAN .....                              | 1    |
| 1.1 Latar Belakang .....                             | 1    |
| 1.2 Rumusan Masalah .....                            | 4    |
| 1.3 Tujuan Penelitian.....                           | 4    |
| 1.4 Batasan Penelitian .....                         | 5    |
| 1.5 Manfaat Penelitian .....                         | 6    |
| 1.6 Struktur Penulisan .....                         | 6    |
| BAB II KAJIAN PUSTAKA .....                          | 7    |
| 2.1 Tinjauan Teoritis.....                           | 7    |
| 2.1.1 Sentimen Masyarakat .....                      | 7    |
| 2.1.2 Media Sosial X.....                            | 8    |
| 2.1.3 Pasar Saham dan Harga Saham .....              | 10   |
| 2.1.4 Alfamart (PT Sumber Alfaria Trijaya Tbk) ..... | 11   |
| 2.2 Tinjauan Teknologi.....                          | 13   |
| 2.2.1 Pengolahan Data Teks .....                     | 13   |
| 2.2.2 Analisis Sentimen.....                         | 15   |
| 2.2.3 Deep Learning.....                             | 21   |
| 2.2.4 Evaluasi Model.....                            | 27   |
| 2.3 Tinjauan Penelitian Terdahulu.....               | 29   |
| BAB III METODE PENELITIAN.....                       | 32   |
| 3.1 Desain Penelitian.....                           | 32   |
| 3.2 Analisis Kebutuhan Penelitian .....              | 33   |
| 3.2.1 Data .....                                     | 33   |

|                                                                    |    |
|--------------------------------------------------------------------|----|
| 3.2.2 Algoritma yang Akan Digunakan.....                           | 35 |
| 3.2.3 Lingkungan Implementasi.....                                 | 36 |
| 3.3 Perancangan dan Implementasi Sistem Prediksi Harga Saham ..... | 37 |
| 3.3.1 Pengumpulan Data .....                                       | 37 |
| 3.3.2 Pengolahan Data Teks .....                                   | 39 |
| 3.3.3 Klasifikasi Sentimen dan Integrasi Data .....                | 40 |
| 3.3.4 <i>Exploratory Data Analysis</i> (EDA) .....                 | 43 |
| 3.3.5 <i>Preprocessing</i> .....                                   | 44 |
| 3.3.6 Training .....                                               | 46 |
| 3.4 Pengujian.....                                                 | 49 |
| 3.5 Evaluasi .....                                                 | 50 |
| BAB IV HASIL PENELITIAN DAN PEMBAHASAN .....                       | 51 |
| 4.1 Hasil Pengumpulan Data.....                                    | 51 |
| 4.1.1 <i>Dataset</i> Saham .....                                   | 51 |
| 4.1.2 <i>Dataset</i> Sentimen .....                                | 53 |
| 4.2 Hasil Pengolahan Data Teks.....                                | 54 |
| 4.3 Hasil Klasifikasi Sentimen.....                                | 56 |
| 4.3.1 Pendekatan Lexicon .....                                     | 57 |
| 4.3.2 <i>Neural Network</i> .....                                  | 57 |
| 4.3.3 BERT .....                                                   | 58 |
| 4.3.4 Perbandingan Klasifikasi .....                               | 58 |
| 4.3.5 Hasil klasifikasi Sentimen Menggunakan Algoritma BERT.....   | 59 |
| 4.4 Hasil EDA .....                                                | 60 |
| 4.5 Hasil <i>Preprocessing</i> Data .....                          | 68 |
| 4.6 Hasil Model Prediksi Harga Saham .....                         | 70 |
| 4.6.1 Pemilihan Kombinasi Fitur .....                              | 70 |
| 4.6.2 Komparasi Model.....                                         | 72 |
| 4.7 Evaluasi dan Analisis Hasil.....                               | 79 |
| 4.7.1 Dampak Integrasi Sentimen .....                              | 79 |
| 4.7.2 Analisis Hasil .....                                         | 80 |
| BAB V KESIMPULAN DAN SARAN.....                                    | 82 |
| 5.1 Kesimpulan .....                                               | 82 |

|                |    |
|----------------|----|
| 5.2 Saran..... | 83 |
| LAMPIRAN.....  | 85 |

## DAFTAR GAMBAR

|                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------|----|
| Gambar 2. 1 Arsitektur Neural Network .....                                                                 | 17 |
| Gambar 2. 2 Arsitektur BERT .....                                                                           | 19 |
| Gambar 2. 3 Arsitektur RNN .....                                                                            | 22 |
| Gambar 2. 4 Representasi Time-Layered dari (Gambar 2.3) .....                                               | 22 |
| Gambar 2. 5 Arsitektur LSTM .....                                                                           | 24 |
| Gambar 2. 6 Arsitektur ELM .....                                                                            | 25 |
| Gambar 3. 1 Alur penelitian dengan pendekatan waterfall .....                                               | 33 |
| Gambar 3. 2 Visualisasi pergerakan harga saham AMRT dari dataset<br>AMRT.csv .....                          | 34 |
| Gambar 3. 3 Pergerakan harga saham AMRT dari platform Tradeview .....                                       | 34 |
| Gambar 3. 4 Flowchart Proses Crawling Data Tweet .....                                                      | 38 |
| Gambar 3. 5 Flowchart proses klasifikasi dan Integrasi data Sentimen .....                                  | 41 |
| Gambar 3. 6 Proses pembuatan model prediksi tanpa sentimen .....                                            | 47 |
| Gambar 3. 7 Proses pembuatan model prediksi dengan integrasi data<br>sentimen .....                         | 49 |
| Gambar 4. 1 Distribusi kategori sentimen .....                                                              | 59 |
| Gambar 4. 2 Visualisasi pergerakan harga saham AMRT dari 20-01- 2024<br>sampai 20-01-2025 .....             | 63 |
| Gambar 4. 3 Visualisasi pergerakan harga saham AMRT dan sentimen dari<br>20-01-2024 sampai 20-01-2025 ..... | 63 |
| Gambar 4. 4 Visualisasi boxplot dari kolom previous, open_price,<br>first_trade, dan close .....            | 67 |
| Gambar 4. 5 Visualisasi boxplot dari kolom high, low, index_individual, dan<br>offer .....                  | 68 |
| Gambar 4. 6 Data harga Saham Setelah Melalui Proses MinMax Scaling ..                                       | 70 |
| Gambar 4. 7 Perbandingan Hasil Prediksi dan Data Aktual Model RNN<br>Tanpa Fitur Sentimen .....             | 74 |
| Gambar 4. 8 Perbandingan Hasil Prediksi dan Data Aktual Model RNN<br>Dengan Fitur Sentimen .....            | 74 |
| Gambar 4. 9 Perbandingan Hasil Prediksi dan Data Aktual Model LSTM<br>Tanpa Fitur Sentimen .....            | 76 |
| Gambar 4. 10 Perbandingan Hasil Prediksi dan Data Aktual Model LSTM<br>Dengan Fitur Sentimen .....          | 76 |
| Gambar 4. 11 Perbandingan Hasil Prediksi dan Data Aktual Model ELM<br>Tanpa Fitur Sentimen .....            | 77 |
| Gambar 4. 12 Perbandingan Hasil Prediksi dan Data Aktual Model ELM<br>Dengan Fitur Sentimen .....           | 78 |

## DAFTAR TABEL

|                                                                                        |    |
|----------------------------------------------------------------------------------------|----|
| Tabel 4. 1 keterangan setiap kolom dari dataset AMRT.csv .....                         | 52 |
| Tabel 4. 2 keterangan tiap kolom pada dataset sentimen .....                           | 53 |
| Tabel 4. 3 Input dan Output dari Kode Program 4.1 .....                                | 55 |
| Tabel 4. 4 Input dan Output dari Kode Program 4.2 .....                                | 56 |
| Tabel 4. 5 Hasil evaluasi metode klasifikasi sentimen.....                             | 58 |
| Tabel 4. 6 Jumlah data sentimen tiap klasifikasi.....                                  | 59 |
| Tabel 4. 7 nilai mean, min, max, dan standar deviasi dataset .....                     | 61 |
| Tabel 4. 8 Nilai Q1, Q2, dan Q3 dataset .....                                          | 62 |
| Tabel 4. 9 Hasil uji skor korelasi terhadap kolom target.....                          | 65 |
| Tabel 4. 10 Jumlah missing value tiap kolom dari dataset AMRT.....                     | 66 |
| Tabel 4. 11 Hasil Pelatihan Model RNN Dengan Beberapa Kombinasi Fitur<br>Terbaik.....  | 70 |
| Tabel 4. 12 Hasil Pelatihan Model LSTM Dengan Beberapa Kombinasi<br>Fitur Terbaik..... | 71 |
| Tabel 4. 13 Hasil Pelatihan Model ELM Dengan Beberapa Kombinasi Fitur<br>Terbaik.....  | 71 |
| Tabel 4. 14 Perbandingan Hasil Uji Model RNN Tanpa dan Dengan<br>Sentimen.....         | 73 |
| Tabel 4. 15 Perbandingan Hasil Uji Model LSTM Tanpa dan Dengan<br>Sentimen.....        | 75 |
| Tabel 4. 16 Perbandingan Hasil Uji Model ELM Tanpa dan Dengan<br>Sentimen.....         | 77 |

## **DAFTAR KODE PROGRAM**

|                                                                  |    |
|------------------------------------------------------------------|----|
| Kode Program 4. 1 Fungsi Python Untuk Proses Text Cleaning ..... | 54 |
| Kode Program 4. 2 Fungsi Python Untuk Melakukan Stemming.....    | 55 |

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