TOPIC MODELING TWITTER BAHASA INDONESIA DAN JAWA MENGGUNAKAN METODE BERTOPIC DENGAN MODEL EMBEDDINGS NUSABERT

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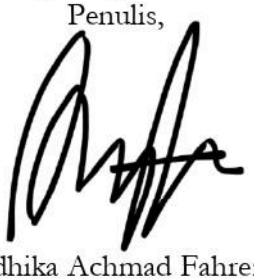

Andhika Achmad Fahreza

ABSTRAK

TOPIC MODELING TWITTER BAHASA INDONESIA DAN JAWA MENGGUNAKAN METODE BERTOPIC DENGAN MODEL EMBEDDINGS NUSABERT

Oleh:
Andhika Achmad Fahreza

Pertumbuhan pesat media sosial, khususnya Twitter, telah menghasilkan volume data teks yang sangat besar dalam berbagai bahasa lokal, termasuk Bahasa Indonesia dan Bahasa Jawa. Keragaman linguistik, penggunaan bahasa informal, serta fenomena code-switching menimbulkan tantangan dalam proses analisis teks dan ekstraksi informasi tematik. Penelitian ini bertujuan untuk menerapkan dan mengevaluasi metode BERTopic dengan model embeddings NusaBERT dalam melakukan pemodelan topik pada data Twitter berbahasa Indonesia dan Jawa, serta membandingkan kinerjanya dengan IndoSBERT. Data diperoleh dari platform Hugging Face dan melalui tahapan preprocessing yang meliputi case folding, penghapusan URL, mention, hashtag, escape sequence, tanda baca, serta normalisasi kata tidak baku. Representasi teks dibangun menggunakan embeddings dari NusaBERT dan IndoSBERT, kemudian direduksi dimensinya menggunakan UMAP dan dikelompokkan menggunakan HDBSCAN dalam kerangka BERTopic. Kualitas topik dievaluasi menggunakan metrik Topic Coherence, Topic Diversity, dan analisis visualisasi seperti intertopic distance map dan hierarchical clustering. Hasil penelitian menunjukkan bahwa kombinasi BERTopic–NusaBERT mampu menghasilkan topik yang lebih koheren dan beragam dibandingkan IndoSBERT, khususnya pada data yang mengandung variasi bahasa daerah dan bahasa informal. Hal ini membuktikan bahwa NusaBERT lebih adaptif dalam merepresentasikan karakteristik linguistik Bahasa Indonesia dan Jawa, sehingga lebih efektif untuk pemodelan topik pada data Twitter multibahasa. Penelitian ini diharapkan dapat menjadi referensi dalam pengembangan analisis topik berbasis transformer untuk bahasa lokal di Indonesia.

Kata kunci: *Topic Modeling*, BERTopic, NusaBERT, Twitter, Jawa

ABSTRACT

TOPIC MODELING ON TWITTER IN INDONESIAN AND JAVANESE USING THE BERTOPIC METHOD WITH THE NUSABERT EMBEDDINGS MODEL

By:
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The rapid growth of social media, particularly Twitter, has generated a massive volume of textual data in various local languages, including Indonesian and Javanese. Linguistic diversity, informal language usage, and code-switching phenomena pose significant challenges for text analysis and thematic extraction. This study aims to implement and evaluate the BERTopic method using NusaBERT embeddings for topic modeling on Indonesian and Javanese Twitter data, as well as to compare its performance with IndoSBERT. The dataset was obtained from the Hugging Face platform and processed through several preprocessing steps, including case folding, removal of URLs, mentions, hashtags, escape sequences, punctuation, and slang normalization. Text representations were generated using NusaBERT and IndoSBERT embeddings, then reduced in dimensionality using UMAP and clustered using HDBSCAN within the BERTopic framework. Topic quality was evaluated using Topic Coherence, Topic Diversity, and visualization analyses such as the intertopic distance map and hierarchical clustering. The results show that the BERTopic–NusaBERT combination produces more coherent and diverse topics than IndoSBERT, particularly for data containing regional language variations and informal expressions. This demonstrates that NusaBERT is more adaptive in capturing the linguistic characteristics of Indonesian and Javanese, making it more effective for topic modeling on multilingual Twitter data. This study is expected to contribute to the development of transformer-based topic modeling for local languages in Indonesia.

Kata kunci: *Topic Modeling*, BERTopic, NusaBERT, Twitter, *Javanese*

DAFTAR ISI

DAFTAR GAMBAR

DAFTAR TABEL

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