ABSTRAK

Fenomena *Fear of Missing Out* (FOMO) terhadap Tren Fashion menjadi isu perilaku yang semakin marak di kalangan mahasiswa seiring dengan tingginya intensitas penggunaan media sosial. Penelitian ini bertujuan untuk membangun model *Machine Learning* menggunakan algoritma *Random forest* untuk memprediksi tingkat FOMO mahasiswa Universitas Malikussaleh berdasarkan pola penggunaan media sosial mereka. Pengumpulan data dilakukan secara primer melalui penyebaran kuesioner pada 624 responden mahasiswa. Tantangan ketidakseimbangan kelas (*class imbalance*) pada dataset diselesaikan menggunakan teknik *Synthetic Minority Over-sampling Technique* (SMOTE) sehingga menghasilkan data latih yang seimbang sebanyak 322 sampel untuk masing-masing kelas target (Rendah, Sedang, Tinggi). Hasil pengujian model *Random forest* menunjukkan performa akurasi total sebesar 62%, dengan nilai *F1-Score* tertinggi sebesar 69% diraih pada klasifikasi kelas FOMO tingkat sedang. Melalui analisis *Feature Importance* dan ekstraksi aturan pohon keputusan (*decision tree rules*), ditemukan bahwa pengaruh Tren Fashion dan interaksi langsung terhadap konten *fashion* (seperti aktivitas *liking* dan melihat OOTD) menjadi indikator paling dominan yang memicu FOMO. Sebaliknya, durasi waktu harian penggunaan media sosial memiliki kontribusi paling rendah. Penelitian ini membuktikan bahwa algoritma *Random forest* yang dioptimasikan dengan SMOTE mampu mengklasifikasikan perilaku psikologis yang dinamis dengan baik dan memberikan wawasan penting bagi industri *digital marketing* serta literasi kesehatan mental mahasiswa.

Kata Kunci: *Fear of Missing Out* (FOMO), *Fashion*, Pola Media Sosial, *Machine Learning*, *Random forest*, *SMOTE*.

ABSTRACT

The phenomenon of Fear of Missing Out (FOMO) regarding fashion trends has become an increasingly prevalent behavioral issue among university students, driven by the high intensity of social media usage. This study aims to develop a Machine Learning model using the Random forest algorithm to predict the FOMO levels of Universitas Malikussaleh students based on their social media usage patterns. Primary data collection was conducted via questionnaires distributed to 624 active student respondents. The challenge of class imbalance within the dataset was addressed using the Synthetic Minority Over-sampling Technique (SMOTE), resulting in a balanced training set of 322 samples for each target class (Low, Medium, High). The evaluation of the Random forest model demonstrated a total Accuracy of 62%, with the highest F1-Score of 69% achieved in the medium FOMO level classification. Through Feature Importance analysis and decision tree rules extraction, it was revealed that the influence of fashion trends and direct interaction with fashion content (such as liking activities and viewing OOTDs) were the most dominant indicators triggering FOMO. Conversely, the daily duration of social media usage contributed the least. This study proves that the Random forest algorithm optimized with SMOTE is capable of effectively classifying dynamic psychological behaviors and provides crucial insights for the digital marketing industry as well as student mental health literacy.

Keywords: *Fear of Missing Out (FOMO), Fashion, Social Media Patterns, Machine Learning, Random forest, SMOTE.*