

ABSTRAK

Atopic Dermatitis (AD) merupakan penyakit kulit kronis yang membutuhkan deteksi dini untuk mencegah perburukan gejala, namun proses diagnosis masih bergantung pada observasi manual. Penelitian ini bertujuan membangun model klasifikasi citra AD menggunakan arsitektur EfficientNetB0 yang dilengkapi interpretasi visual melalui Grad-CAM (*Gradient-weighted Class Activation Mapping*). Pengembangan model mengikuti tahapan CRISP-DM dan dilatih menggunakan dataset berisi dua kelas (AD dan Non-AD) yang telah melalui proses augmentasi dan normalisasi. Evaluasi dilakukan pada lima skenario proporsi data latih dan uji, dengan skenario 80:20 menunjukkan performa terbaik—akurat 94% dengan *precision*, *recall*, dan *F1-score* yang seimbang. Visualisasi Grad-CAM menunjukkan bahwa model memfokuskan prediksi pada area lesi kulit yang relevan secara klinis, dan hasilnya telah divalidasi oleh dokter spesialis kulit. Temuan ini menunjukkan bahwa model tidak hanya akurat, tetapi juga dapat diinterpretasikan secara visual, sehingga potensial digunakan sebagai sistem bantu deteksi awal berbasis citra.

Kata Kunci: *Atopic Dermatitis*, EfficientNetB0, Grad-CAM, Klasifikasi Citra, *Deep Learning*



ABSTRACT

Atopic Dermatitis (AD) is a chronic skin disease that requires early detection to prevent worsening symptoms, yet its diagnosis still heavily relies on manual observation. This study aims to develop an image classification model for AD using the EfficientNetB0 architecture, enhanced with visual interpretation through Gradient-weighted Class Activation Mapping (Grad-CAM). The model was developed based on the CRISP-DM methodology and trained on a two-class dataset (AD and Non-AD) that had undergone augmentation and normalization processes. Evaluation was conducted across five train-test data split scenarios, with the 80:20 ratio showing the best performance—achieving 94% accuracy with balanced precision, recall, and F1-score. Grad-CAM visualizations revealed that the model focused its predictions on skin lesion areas clinically associated with AD, and the interpretation results were validated by a dermatology specialist. These findings indicate that the model is not only accurate but also interpretable, making it a promising tool for early detection support in medical image-based diagnosis.

Keywords: *Atopic Dermatitis, EfficientNetB0, Grad-CAM, Image Classification, Deep Learning*

