

ABSTRAK

ANNISA PRATIWI. Perbandingan *Support Vector Machine* (SVM) dan *Logistic Regression* untuk Klasifikasi Citra Filum *Mollusca* Berdasarkan Fitur Visual (Studi Kasus: Pantai Trikora). Dibimbing oleh Nurfalinda dan Marisha Pertiwi.

Penelitian ini menyajikan penerapan metode *Support Vector Machine* (SVM) dan *Logistic Regression* dalam mengklasifikasikan citra filum *Mollusca* jenis *Bivalvia* dan *Gastropoda* berdasarkan fitur visual. Dataset yang digunakan terdiri dari 168 data pelatihan, 36 data validasi, dan 36 data pengujian dengan menggunakan ekstraksi fitur HSV (*Hue, Saturation, Value*), *Hue Moments*, dan GLCM (*Gray Level Co-occurrence Matrix*). Hasil pengujian menunjukkan bahwa algoritma SVM dengan *kernel* RBF memiliki performa yang lebih unggul dibandingkan *Logistic Regression*. Model SVM mencapai akurasi validasi sebesar 0,9722 dan akurasi pengujian sebesar 94,44% serta nilai *precision* sebesar 100%, *recall* sebesar 88,88% dan *F1-score* sebesar 94,11% dengan tingkat keberhasilan mengenali 34 dari 36 citra data uji dengan benar. Sedangkan *Logistic Regression* mencapai akurasi validasi sebesar 0,8333 dan akurasi pengujian sebesar 86,11%, serta nilai *precision* sebesar 80,95%, *recall* sebesar 94,44%, dan *F1-score* sebesar 87,18%, dengan tingkat keberhasilan mengenali 29 dari 36 citra data uji dengan benar. Selain itu, pada pengujian *unknown label* sistem memperoleh akurasi sebesar 95%, dengan tingkat keberhasilan mengenali 19 dari 20 citra di luar kelas pelatihan.

Kata kunci: *Mollusca*, *Bivalvia*, *Gastropoda*, *Support Vector Machine* (SVM), *Logistic Regression*, HSV, *Hue Moments*, dan GLCM.

ABSTRACT

ANNISA PRATIWI. *Comparison of Support Vector Machine (SVM) and Logistic Regression for Image Classification of Mollusca Phylum Based on Visual Features (Case Study: Trikora Beach)*. Supervised by NURFALINDA dan MARISHA PERTIWI.

The study presents the application of Support Vector Machine (SVM) and Logistic Regression methods in classifying images of the Mollusca phylum, specifically Bivalvia and Gastropoda species, based on visual features. The dataset used consists of 168 training data, 36 validation data, and 36 testing data using HSV (Hue, Saturation, Value), Hue Moments, and GLCM (Gray Level Co-occurrence Matrix) feature extraction. The experimental results show that the SVM algorithm with the RBF kernel performs better than Logistic Regression. The SVM model achieved a validation accuracy of 0,9722 and a testing accuracy of 94,44%, as well as precision of 100%, recall of 88,88%, and F1-score of 94,11%, successfully recognizing 34 out of 36 test images. Logistic Regression achieved a validation accuracy of 0,8333 and a testing accuracy of 80,55%, as well as a precision of 78,94%, recall of 83,33%, and F1-score of 81,08%, successfully recognizing 29 out of 36 test images. In addition, for the unknown label testing, the system achieved an accuracy of 95%, successfully recognizing 19 out of 20 images outside the training classes.

Keywords: Mollusca, Bivalvia, Gastropoda, Support Vector Machine (SVM), Logistic Regression, HSV, Hue Moments, GLCM.