ABSTRAK

Nanda, Tri. 2024. *Identifikasi Jenis Mangrove Menggunakan Algoritma Backpropagation dan Learning Vector Quantization* Skripsi. Tanjungpinang: Jurusan Teknik Informatika, Fakultas Teknik dan Tekonologi Kemaritiman, Universitas Maritim Raja Ali Haji. Pembimbing I: Nola Ritha S.T., M.Cs. Pembimbing II: Nurul Hayaty., S.T., M.Cs

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Pulau Bintan yang berada di Provinsi Kepulauan Riau memiliki luas lautan yang lebih luas dibandingkan dengan daratan. Hal ini mempengaruhi potensi pesisir yang dimiliki salah satunya adalah mangrove yang tersebar dengan berbagai jenis dan manfaat yang diperoleh. Penelitian ini dilakukan dengan tujuan untuk membandingkan performa algoritma *Backpropagation* dan *Learning Vector Quantization* dalam mengidentifikasi jenis mangrove. Jenis mangrove yang digunakan sebanyak 9 jenis. Dari 9 Jenis mangrove dikumpulkan sampel daun dan buah sehingga diperoleh total data pelatihan sebanyak 1130 dan data pengujian 126 data. Berdasarkan hasil pengujian dari algoritma *Backpropagation* dan *Learning Vector Quantization* diperoleh *confussion matrix Backpropagation* dengan nilai akurasi 0.88, *precision* 0.89, *recall* 0.88, dan *f1-score* 0.88. Sementara LVQ memperoleh evaluasi model dengan nilai akurasi 0.67, 0.70 *precision*, 0.67 *recall*, dan 0.66% *f1-score*. Evaluasi model ini menunjukkan bahwa kedua model mampu melakukan identifikasi jenis mangrove berdasarkan citra mangrove yang diunggah namun model *Backpropagation* lebih baik dalam melakukan identifikasi.

Kata kunci: Backpropagation, Confussion Matrix, Evaluasi Model, LVQ, Mangrove

ABSTRACT

Nanda, Tri. 2024. *Identification of Mangrove Species Using Backpropagation and Learning Vector Quantization Algorithms* Thesis. Tanjungpinang: Department of Informatics Engineering, Faculty of Engineering and Maritime Technology, University of Maritim Raja Ali Haji. Advisor: Nola Ritha S.T., M.Cs. Co-Advisor: Nurul Hayaty., S.T., M.Cs

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Bintan Island, located in the Riau Islands Province, has a sea area that is larger than its land area. This affects the coastal potential it has, one of which is mangroves, which are spread out with various types and benefits. This research was conducted with the aim of comparing the performance of the Backpropagation and Learning Vector Quantization algorithms in identifying mangrove species. Nine types of mangroves were used in this study. Samples of leaves and fruits were collected from these nine types of mangroves, resulting in a total of 1130 training data and 126 testing data. Based on the testing results of the Backpropagation and Learning Vector Quantization algorithms, the Backpropagation model evaluation achieved an accuracy of 0.88, precision of 0.89, recall of 0.88, and f1-score of 0.88. Meanwhile, the LVQ model evaluation achieved an accuracy of 0.67, precision of 0.70, recall of 0.67, and f1-score of 0.66. This model evaluation shows that both models are capable of identifying mangrove species based on uploaded mangrove images, but the Backpropagation model performs better in identification.

Keywords**: **Backpropagation, Confussion Matrix, Model Evaluation, LVQ, Mangrove