

ABSTRAK

Jyotisananda, Ida Bagus (2026), Perbandingan Performa Resnet(50) dan Shrimpnet dalam Klasifikasi Udang Galah Layak dan Tidak Layak Konsumsi

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Kata kunci : Udang Galah, Deep Learning, ResNet(50), ShrimpNet

Penelitian ini bertujuan untuk mengklasifikasikan udang galah layak dan tidak layak konsumsi menggunakan metode deep learning serta membandingkan performa model ResNet(50) dan ShrimpNet untuk menentukan model terbaik. Dataset citra udang galah dikumpulkan melalui proses pengambilan gambar dari peternak udang galah, kemudian dipisahkan menjadi data pelatihan, validasi, dan pengujian. Kedua model dilatih menggunakan masing-masing 27 skenario yang memvariasikan penggunaan dropout, optimizer, dan learning rate. Performa model dievaluasi menggunakan nilai accuracy, precision, recall, dan F1-score, kemudian dianalisis lebih lanjut menggunakan metode Cost Benefit Analysis (CBA) dengan mempertimbangkan aspek akurasi, ukuran model, dan waktu pelatihan. Hasil penelitian menunjukkan bahwa ResNet-50 memperoleh test accuracy tertinggi sebesar 99,93%, sedangkan ShrimpNet memperoleh test accuracy sebesar 99,71%. Berdasarkan hasil analisis Cost Benefit Analysis (CBA), ShrimpNet dipilih sebagai model terbaik karena memberikan keseimbangan yang lebih optimal antara performa klasifikasi dan efisiensi komputasi. Model terbaik kemudian diimplementasikan ke dalam interface sederhana berbasis Android menggunakan React Native sehingga proses identifikasi kelayakan konsumsi udang galah dapat dilakukan secara praktis melalui input citra dan menghasilkan prediksi kelas layak konsumsi atau tidak layak konsumsi.

ABSTRACT

Jyotisananda, Ida Bagus (2026), Performance Comparison of ResNet50 and ShrimpNet for Classifying Consumable and Non-Consumable Giant Freshwater Prawns

This thesis has been approved and examined by: Supervisor I: Dr. Ir. I Made Gede Sunarya, S.Kom., M.Cs. Supervisor II: Ir. Made Windu Antara Kesiman, S.T., M.Sc., Ph.D.

Keywords: Giant Freshwater Prawn, Deep Learning, ResNet50, ShrimpNet

This study aims to classify giant freshwater prawns as suitable or unsuitable for consumption using deep learning methods and to compare the performance of the ResNet-50 and ShrimpNet models to determine the best-performing model. The giant freshwater prawn image dataset was collected through image acquisition from giant freshwater prawn farmers and subsequently divided into training, validation, and testing datasets. Both models were trained using 27 experimental scenarios, each varying the dropout rate, optimizer, and learning rate. Model performance was evaluated using accuracy, precision, recall, and F1-score, and was further analyzed using the Cost Benefit Analysis (CBA) method by considering classification accuracy, model size, and training time. The results showed that ResNet-50 achieved the highest test accuracy of 99.93%, while ShrimpNet achieved a test accuracy of 99.71%. Based on the Cost Benefit Analysis (CBA), ShrimpNet was selected as the best-performing model because it provided a more optimal balance between classification performance and computational efficiency. The selected model was then implemented into a simple Android-based interface developed using React Native, enabling the practical identification of giant freshwater prawns suitable or unsuitable for consumption through image input and prediction of the corresponding classification results.