ABSTRAK

Vinson Andriano (03081210023)

PERBANDINGAN TINGKAT AKURASI *K-NEAREST NEIGHBOR* DAN *EXTREME LEARNING MACHINE* DALAM DIAGNOSIS PENYAKIT ALZHEIMER

(xiiv + 53 halaman; 15 gambar; 15 tabel; 3 lampiran)

Penyakit Alzheimer merupakan salah satu bentuk demensia yang paling umum dan mempengaruhi jutaan orang di seluruh dunia. Penyakit ini bersifat degeneratif yang menyebabkan penurunan fungsi kognitif secara bertahap, termasuk gangguan memori, kemampuan berpikir, dan keterampilan sosial. Dengan meningkatnya populasi lansia, prevalensi penyakit Alzheimer juga diperkirakan akan meningkat, sehingga penting untuk menemukan metode yang efektif untuk diagnosis dini, salah satunya adalah menggunakan *machine learning*. Pada penelitian ini, akan disajikan perbandingan tingkat akurasi *K-Nearest Neighbor* dan *Extreme Learning Machine* dalam diagnosis penyakit Alzheimer. Penelitian ini dimulai dari mengambil *dataset* dari Kaggle, melakukan persiapan data, pelatihan model, pengujian model, hingga visualiasi hasil pengujian model. Hasil penelitian menunjukkan bahwa *Extreme Learning Machine* memiliki tingkat akurasi 94,67%, yang lebih tinggi daripada *K-Nearest Neighbor* dengan akurasi 92%. *Reciever Operating Characteristic Curve* dan *Area Under Curve Score* sebagai metrik evaluasi menunjukkan performa *Extreme Learning Machine* lebih baik dalam mendeteksi Alzheimer dibandingkan dengan *K-Nearest Neighbor*. Maka dari itu, *Extreme Learning Machine* akan digunakan untuk melakukan diagnosa penyakit Alzheimer. Hasil yang didapatkan sebesar 94,37% kesesuaian hasil prediksi dengan label yang sebenarnya.

ABSTRACT

Vinson Andriano (03081210023)

COMPARISON OF THE ACCURACY OF K-NEAREST NEIGHBOR AND EXTREME LEARNING MACHINE IN THE DIAGNOSIS OF ALZHEIMER'S DISEASE

(xiiv + 53 *pages*; 15 *figures*; 15 *tables*; 3 *appendices*)

Alzheimer's disease is one of the most common forms of dementia and affects millions of people worldwide. It is a degenerative disease that causes a gradual decline in cognitive function, including impaired memory, thinking ability, and social skills. With the increasing elderly population, the prevalence of Alzheimer's disease is also expected to increase, making it important to find effective methods for early diagnosis, one of which is using machine learning. In this study, a comparison of the accuracy of K-Nearest Neighbor and Extreme Learning Machine in the diagnosis of Alzheimer's disease will be presented. This research starts from taking datasets from Kaggle, doing data preparation, model training, model testing, to visualizing the results of model testing. The results show that Extreme Learning Machine has an accuracy rate of 94.67%, which is higher than K-Nearest Neighbor with an accuracy of 92%. Reciever Operating Characteristic Curve and Area Under Curve Score as evaluation metrics show that Extreme Learning Machine performs better in detecting Alzheimer's than K-Nearest Neighbor. Therefore, Extreme Learning Machine will be used to diagnose Alzheimer's disease. The result obtained is 94.37% compatibility of prediction results with the actual label.