LAPORAN SKRIPSI

IMPLEMENTATION OF SUPPORT VECTOR MACHINES FOR GENDER CLASSIFICATION

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TEKNIK INFORMATIKA

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Diajukan dalam Rangka Memenuhi

Salah Satu Syarat Memperoleh

Gelar S.Kom

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ABSTRACT (ABSTRACT TITLE)

The classification of gender using facial images has become an increasingly prominent research area. Previous studies have addressed issues such as variability in facial expressions, lighting conditions, and accessories. However, the datasets used have been relatively small, which may limit the robustness of their models. Furthermore, prior research has not yet reached the stage of developing a user-friendly interface for gender prediction. To address these issues, a machine learning algorithm SVM is employed for classification combined with HOG for feature extraction, alongside optimization techniques such as Principal Component Analysis to manage the complexity of large datasets. This dataset, sourced from Kaggle, contains 57,000 cropped images of male and female faces. The SVM model was trained and evaluated, achieving a validation accuracy of 95%, with precision, recall, and F1-score of 0.95 for both gender categories. To make the system more accessible, a web application was also developed using Flask, which offers an intuitive and interactive interface for gender prediction.

Keyword: gender classification, machine learning, svm, feature extraction