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Emotion Recognition Systems: A Study on Models and Accuracy

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Abstract: *Emotion recognition technology has rapidly evolved, finding applications in human-computer interaction, mental health assessment, and social robotics. These systems aim to interpret human emotions using various modalities such as facial expressions, voice tone, and physiological signals. This research focuses on developing and optimizing machine learning models for emotion recognition. By leveraging hyperparameter tuning techniques like GridSearchCV, we aim to identify the most effective model based on accuracy and performance metrics. Furthermore, cross-validation techniques are used to assess the models' generalization capabilities on test datasets. Our findings highlight the factors contributing to the best-performing model and the limitations of less effective models. Ultimately, this research advances emotion recognition technology, paving the way for practical real-world applications.*

Keywords: Emotion Recognition, Machine Learning, Voice Analysis, Physiological Signals, Model Accuracy