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Machine Learning–Based Gesture Recognition System for Virtual Mouse and Keyboard

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Abstract: *This paper presents the implementation of a machine learning-based gesture recognition system for a virtual mouse and keyboard. The goal is to develop a system that allows users to control a computer or mobile device using hand gestures, eliminating the need for physical input devices. The implementation process involves data collection, pre-processing, model training, evaluation, integration with the virtual interface, testing, and deployment. A diverse dataset of hand gestures is collected, and relevant features are extracted for training a machine-learning model. Various algorithms can be used for training, and the model's performance is evaluated using separate test data. Once the model achieves satisfactory performance, it is integrated with the virtual mouse and keyboard interface, allowing it to interpret recognized gestures and translate them into appropriate actions. Thorough testing and refinement are conducted, considering user feedback and real-world scenarios. The final system is deployed for use by end-users, providing a reliable and user-friendly solution for gesture-based computer control.*

Keywords: Machine Learning

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