An Artificial Intelligence Improved Golf Self-Training System using Deep Learning

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Abstract:
Golf is a sport that requires skill, precision, and mental fortitude. To finish a round of golf with the least number of strokes possible, it is optimal to strike the ball consistently in the direction of the hole. However, without professional direction, reaching this goal is frequently difficult owing to the hurdles that golf brings. To address this, a deep learning model based on YoloV7 – a real-time object detection model and Open Pose was developed in this research to recognize the motions of prior data and deliver suggested feedback. This study aims to enhance golf training by analyzing swing mechanics, and player posture in real-time using the proposed technology. The analysis focuses on three key parameters: The golf club's swing action, the player's estimated pose, and ball movement detection. This study uses a hybrid technique to collect and analyze the data, which incorporates both qualitative and quantitative information. The objective of this project is to provide players with real-time feedback on their swing mechanics, body posture, and ball trajectory, enabling them to identify areas for improvement and adjust their technique. The study investigates the influence of training frequency. The findings of this study have the potential to have important consequences for sports skill development, notably in golf training, and may help to improve knowledge of the impact of environmental factors on player performance. In conclusion, this proposed system using deep learning utilizes technology to improve sports training and performance, with the potential to enhance player performance and contribute to advancements in sports training methods.

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I. Introduction

In general, sports are not a field where one may develop their skills without professional guidance. In several sports, the players have to rehearse their moves a lot by mirroring the more skilled players. They must be knowledgeable enough to correct their actions on their own for self-training, or they must hire a personal trainer. Not everyone has access to a personal trainer, and not everyone is an expert in the sport they want to play. In these circumstances, a successful self-training approach must be developed without jeopardizing the standard of teaching.

Authors

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