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Artificial Intelligence-Based Detection of Individuals Suffering from Vestibular Disorder

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Abstract : Identifying the problem behind balance disorder is one of the most interesting topics in the medical literature. This study has considerably enhanced the development of artificial intelligence (AI) algorithms applying multiple machine learning (ML) models to sensory data on gait collected from humans to classify between normal people and those suffering from Vestibular System (VS) problems. Although AI is widely utilized as a diagnostic tool in medicine, AI models have not been used to perform feature extraction and identify VS disorders through training on raw data. In this study, three machine learning (ML) models, the Random Forest Classifier (RF), Extreme Gradient Boosting (XGB), and K-Nearest Neighbor (KNN), have been trained to detect VS disorder, and the performance comparison of the algorithms has been made using accuracy, recall, precision, and f1-score. With an accuracy of 95.28 %, Random Forest Classifier (RF) was the most accurate model.

Keywords : vestibular disorder, machine learning, random forest classifier, k-nearest neighbor, extreme gradient boosting
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