Closing the Gap Between Healthcare and Privilege: Use of Feature Extraction, Supervised Multi-Class Clarification, and Statistical Pattern Recognition to Predict Gait Injury Class Labels

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Three in every ten people experience a gait injury in their lifetime, and two in ten people experience poverty. A lack of financial stability can cause insufficient treatment and potential worsening of injuries; a problem this project hopes to remediate. The leading question of this experiment was: “Could AI, when given proper training, analyze raw gait data so that it could provide an accurate diagnosis?” In order to find an answer to this inquiry, an AI, in this case ChatGPT, was sent 50 percent of a gait data file with the metadata to accompany it, serving as an answer key to help make sense of what would otherwise be a jumble of data. After receiving the data, the AI was instructed to search for patterns in the data so that it could recognize those patterns within the raw data. Once the AI was fully trained, a wide range of trials were sent, and the AI was instructed to give a class label prediction. Then the accuracy for each trial was recorded, as well as the correct answer and the answer given. After thorough testing, the AI provided a 90% accuracy rate with its predictions having an especially difficult time with the class label A, which represents the ankle. The level of accuracy shown gives hope that with proper resources, the AI diagnostic system could be developed into a worldwide system, specifically in lower-income areas, helping alleviate some of the cost that comes with injury treatment and diagnosis.

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