Submission Summary

Conference Name
IEEE International Conference on Advances in Computing Research on Science Engineering and Technology (ACROSET 2025)

Paper ID
37

Paper Title
Audiometric Analyzer: Assessing Individual Hearing Health and Hearing Age Using Sound Synthesis and XGBRegressor Trained on a Custom Authentic Database

Abstract
Hearing health is crucial for communication, cognitive function, emotional well-being, and overall quality of life. However, with the increasing use of auditory devices such as headphones and earphones, more individuals are unknowingly suffering from hearing loss. Undetected hearing impairment can lead to cognitive decline and increased dementia risk, making early detection essential. Regular hearing health checks are important, but traditional lab-based assessments are often inconvenient, costly, and inaccessible, particularly in underdeveloped regions. Existing hearing health analyzers also suffer from high costs, inconsistent assessment methods, and limited public awareness. This research proposes an innovative solution: an audiometric analyzer that offers a simple, at-home assessment of hearing abilities. The system leverages sound synthesis techniques and an XGBRegressor machine learning model trained on a custom and authentic database to provide accurate and efficient evaluations of hearing health and hearing age. The prototype demonstrates significant potential in overcoming the accessibility, cost, and consistency issues faced by traditional devices, providing a user-friendly alternative for hearing health monitoring.

Created
27/03/2025, 23:02:09

Last Modified
27/03/2025, 23:02:09

Authors
Nirvaan Zaveri (Independent Researcher) <zaverinirvaan2@gmail.com>

Primary Subject Area
Artificial Intelligence and Machine Learning

Submission Files

Nirvaan Zaveri Final Research Paper.pdf (665.3 Kb, 27/03/2025, 23:01:24)