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Design and Use of Deep Confidence Network Based on Crayfish Optimization Algorithm in Automatic Assessment Method of Hearing Effectiveness

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Abstract

INTRODCTION: Listening strategy analysis and assessment not only need objective and fair sound listening strategy analysis, but also need high-precision and high real-time assessment model, and even more need in-depth analysis and feature extraction of the influencing factors of listening assessment.
OBJECTIVES: To address the problems of current automatic assessment methods, such as non-specific application, poor generalization, low assessment accuracy, and poor real-time performance.
METHODS: This paper proposes an automatic assessment method based on a deep confidence network based on crawfish optimization algorithm. First, the multi-dimensional listening strategy evaluation system is constructed by analyzing the listening improvement strategy; then, the depth confidence network is improved by the crayfish optimization algorithm to construct the automatic evaluation model; finally, through the analysis of simulation experiments.
RESLUTS: The proposed method improves the evaluation accuracy, robustness, and real-time performance. The absolute value of the relative error of the automatic evaluation value of the proposed method is controlled in the range of 0.011, and the evaluation time is less than 0.005 s. The method is based on a deep confidence network based on the crayfish optimization algorithm.
CONCLUSION: The problems of non-specific application of automated assessment methods, poor generalization, low assessment accuracy, and poor real-time performance are addressed.

Keywords: automatic assessment of listening effectiveness, listening strategy assessment system, crayfish optimization algorithm, deep learning network

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1. Introduction

Listening as an important embodiment of language communication ability, English listening has become an increasingly important part of English listening teaching, recognized and accepted by the majority of scholars [1], how to improve students' listening comprehension ability has become a common concern of experts and scholars in the field of education [2]. With the deepening of reform in the field of education, the use of diverse listening strategies to improve students' physical comprehension ability, the traditional listening assessment methods can no longer meet the use of listening strategies and effect analysis, can not meet the systematic regional analysis of strategies affecting students' English listening performance, can not meet the teachers to better guide students to use listening strategies, so as to improve the listening performance [3]. Listening strategy analysis and assessment not only need objective and fair sound listening strategy analysis, but also need high-precision, high real-time assessment model, and more need to listen to the in-depth analysis of the factors affecting the assessment and feature extraction [4].