

Research and development of deep learning models for emotion recognition from EEG signals under resource-constrained conditions

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Abstract: This paper focuses on researching and developing an optimized deep learning model for emotion recognition from electroencephalogram (EEG) signals, particularly targeting systems with limited computational resources. The main objective is to address the challenge of balancing recognition accuracy and hardware performance on edge devices or smart wearables. The approach is based on designing a streamlined convolutional neural network (CNN) architecture combined with model compression techniques and parameter quantization to minimize computational load while preserving information extraction characteristics. The expected research results will provide an effective real-time emotion recognition solution capable of flexible deployment on mobile platforms without relying on powerful server infrastructure. The topic contributes significant meaning to promoting human-computer interaction applications and supporting mental health diagnosis in practice.

Keywords: emotion recognition, electroencephalogram (EEG), deep learning, limited resources, edge device