e for
continuous dimension emo tion automatic analysis and machine recognition.

Keywords -component ; EEG ; FFT ; CWT ; CNN; emotion recognition

I. INTRODUCTION

Emotion recognition is a multidisciplinary research field integrating cognitive science, psychology, computer science , and neuroscie nce. It is a difficult and hot spot in the field of cognitive science. With the enhancement of computer computing power, the cost of implementing machine learning algorithms is greatly reduced, and building a machine learning algorithm model can effectivel y improve the accuracy and robustness of emotion recognition. At the same time, with the development of non -invasive sensing technology and human - computer interaction technology, EEG signals are gradually introduced into the field of emotion recognition re search due to their strong objectivity and high accuracy of classification and recognition.

Emotion recognition of EEG signals has achieved good classification results under traditional machine learning classifiers. Reference [1] used linear kernel least squares support vector machines (LS -SVM) and back propagation artificial neural network (BP -ANN), which are effective the two-category emotion recognition is performed on the valence - arousal model and the accuracy rate reaches 61.17% and 64.84%. Reference [2] extracted EEG signal features from the DEAP data set by combining maximum correlation, minimum redundancy and principal component analysis, and fused high - dimensional features, using support vector machines (SVM) for classification, and accurate classif ication in terms of valence and arousal the accuracy were 72.45% and 76.1%. Reference [3] used an efficient feature selection method and a kernel -based classifier to classify emotions on the standard EEG data set, and the accuracy of the valence and arousa l o classifier reached 73.06%, 73.14%.

The increase in computer processing speed and computing power provides the possibility for the design and implementation of deep learning networks. Reference [4] extracted the median, mean, variance, and kurt osis of the EEG signal on the DEAP data set, and used a convolutional neural network (CNN) as the classifier to achieve valence -valence. Emotion recognition was performed on the degree of emotion model, and the average classification accuracy rates of 81.4 0% and 73.36%. Reference [5] divided the EEG signal into multiple time periods on the DEAP data set and extracted its features and used the Long -Short term memory (LSTM) algorithm for dimensional emotion classification, and the accuracy rates were 73.9% an d 73.5% respectively; Reference [6] introduced the deep belief networks with glia chains (DBN - GC) model to extract high -level abstract features in the time domain, frequency domain, and time -frequency domain of the EEG signal and used restricted Boltzmann machines (RBM) to achieve emotion classification accuracy rates of 81.40% and