ernel -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 73.36%.
At present, in EEG signal emotion recognition, the accuracy of continuous emotion recognition based on the dimensional emotion model is generally not high, especially fo r the four-category emotion recognition research, which cannot meet the application needs, and the individual emotional physiological characteristics vary greatly. The characteristics of physiological signals related to emotions are not sufficient and the differences are not significant. Therefore, in response to these problems, this article uses two types of feature extraction tools on the dimensional emotional data set: fast Fourier transform (FFT) and continuous wavelet transform (CWT), and constructs tw o CNN models for classifying EEG signals. By comparing the experimental results of the two proposed models with other emotion classification task models, the FFT CNN model obtained a better recognition accuracy, which laid a solid foundation for the automa tic emotion analysis and recognition of physiological signals.

II. MATERAILS AND METHODS

The steps of emotion recognition based on EEG signals generally include: emotion induction, EEG signal collection, signal preprocessing, EEG feature extraction and emotion learning classification.
In this paper, the data set is DEAP [7]. The overall design framework is shown in Fig. 1. First, a band pass filter is used to 2021 International Conference on Electronic

82
preprocess the original EEG signal to filter out high -frequency clutter. Second, a fast Fourier transfo rm (FFT) and continuous wavelet transform (CWT) perform feature extraction on EEG signals . Finally, through neural network learnin the classification results are output.
EEG signalPreprocessing