1. Convolutional Neural Networks (CNNs):

CNNs are a powerful feature extraction technique that can extract relevant features from images. You can use a CNN to extract visual features from the input images, such as the edges, corners, and textures of the road and objects in the environment. You can then use the extracted features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Recurrent Neural Networks (RNNs):

RNNs are another powerful feature extraction technique that can extract relevant features from sequential data, such as time-series data or sensor data. You can use an RNN to extract temporal features from the input data, such as the correlation between past and current sensor readings, or the pattern of change in speed and steering angle over time. You can then use the extracted features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Principal Component Analysis (PCA):

PCA is a feature extraction technique that can be used to reduce the dimensionality of high-dimensional data, such as image data or sensor data. You can use PCA to extract the most relevant features from the input data, such as the most important visual or sensor information that contributes to the prediction of the speed, steering angle, and brake commands.

1. Fourier Transform:

The Fourier Transform is a feature extraction technique that can be used to extract frequency information from time-series data, such as sensor data or speed and steering angle data. You can use the Fourier Transform to extract the frequency components of the input data, such as the periodicity of speed and steering angle changes, or the dominant frequencies of sensor readings. You can then use the extracted features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Wavelet Transform:

The Wavelet Transform is a feature extraction technique that can be used to extract both frequency and time-domain information from time-series data. You can use the Wavelet Transform to extract the time and frequency components of the input data, such as the correlation between speed and steering angle changes over time, or the frequency and amplitude of sensor readings. You can then use the extracted features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

Being specific on image processing

1. Histogram of Oriented Gradients (HOG):

HOG is a feature extraction technique that can be used to extract relevant information from images based on the distribution of gradient orientations in the image. HOG can be used to capture the shape and structure of objects in the image, such as the edges of the road or the outline of other cars. You can use the extracted HOG features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Convolutional Neural Networks (CNNs):

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1. Scale-Invariant Feature Transform (SIFT):

SIFT is a feature extraction technique that can be used to extract invariant features from images, such as the keypoints and their descriptors. SIFT can be used to capture distinctive features of objects in the image, such as the corners of the road or the distinctive features of other cars. You can use the extracted SIFT features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Speeded Up Robust Features (SURF):

SURF is a feature extraction technique that can be used to extract scale-invariant and robust features from images, such as the keypoints and their descriptors. SURF is an extension of SIFT and can be used to capture more features in a faster and more robust way. You can use the extracted SURF features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.

1. Local Binary Patterns (LBP):

LBP is a feature extraction technique that can be used to extract texture information from images based on the distribution of binary patterns in the image. LBP can be used to capture the texture of objects in the image, such as the road surface or the texture of other cars. You can use the extracted LBP features as inputs to a regression or classification model to predict the speed, steering angle, and brake commands.