a large amount of information extraction work is done in the frequency domain. Information at different frequencies contains different physical meanings. The convolution kernel is also called a filter, because the convolution process is actually a filtering process. This means that a deep convolutional neural network is like a string of intelligent filter banks. It is helpful for the extraction of beam information. First, I will introduce some background knowledge of convolutional neural networks and beam diagnostics. In this part, I want to explain why a machine learning model that is usually used to process images is used to process electrical signals in beam virtual diagnostics. Later, the application of convolutional neural network in virtual beam diagnostic at SSRF will be introduced.