**ABSTRACT:**

Deep learning has given way to a new era of machine learning, apart from computer vision. Convolutional neural networks have been implemented in image classification, segmentation and object detection. Despite recent advancements, we are still in the very early stages and have yet to settle on best

practices for network architecture in terms of deep design, small in size and a short training time. In this paper, we address the issue of speed and size by proposing a compressed convolutional neural network model namely Super-Resolution Convolution Neural Network (SRCNN).SRCNN was the first deep learning method to outperform traditional ones. It is a convolutional neural network consisting of only 3 convolutional layers: patch extraction and representation, non‑linear mapping and reconstruction. With SRCNN, PSNR of the image gets better than the classical non-learning based Bicubic and sparse coding (SC) which was and still is also a very hot research topic. Before being fed into the network, an image needs to be upsampled via bicubic interpolation. It’s then converted to YCbCr color space, while only luminance channel (Y) is used by the network. The network’s output is then merged with interpolated CbCr channels to produce a final color image. We chose this procedure because we are not interested in changing colors (this is the information stored in the CbCr channels), but only their brightness (the Y channel), and ultimately because human vision is more sensitive to luminance (“black and white”) differences than chromatic differences. We have pre-processed the image with a filter called BM3D (Block matching and 3D Transform). It gives a better result than the conventional filters like Gaussian filter and it has a capability to pre-process the images with any kind of noise.