# Abstract

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In real life, people usually take a lot of photos at the same time, then pick the best one to save. So, we want to make a program that finds the best photo out of a set of set of photos of the same person, object or view. In this project, many techniques are used to preprocess the features of photos in order to select the best photo out a set of photos of the same object or view. The features are quantified by the sharpness, exposureness, orientation, facial expression, and the rule of thirds. The sharpness is quantified by the average square gradient of the photo. The exposureness is quantified by a histogram of how the pixel values are distributed. The orientation is quantified by the vanishing point (VP) and feather calculation based on the VP. The facial expression is quantified by the score of how much the face in the image that is smiling using the neural network trained on our facial expression dataset. The rule of thirds is quantified by the number of objects, which are detected in the photo, distributed in the different regions of the photo. After all these preprocesses, the features are passed into neural network with back propagation. The test data goes through all the preprocesses listed above and then passes to the trained network to obtain the scores. And the photo with the highest score will be the winner. Our expected result is outperforming the simple-trained neural network with back propagation using the same dataset without any preprocesses listed above. The accuracy of simple-trained neural network on telling if a photo is good or bad is 60%. The accuracy of our network is 75%.