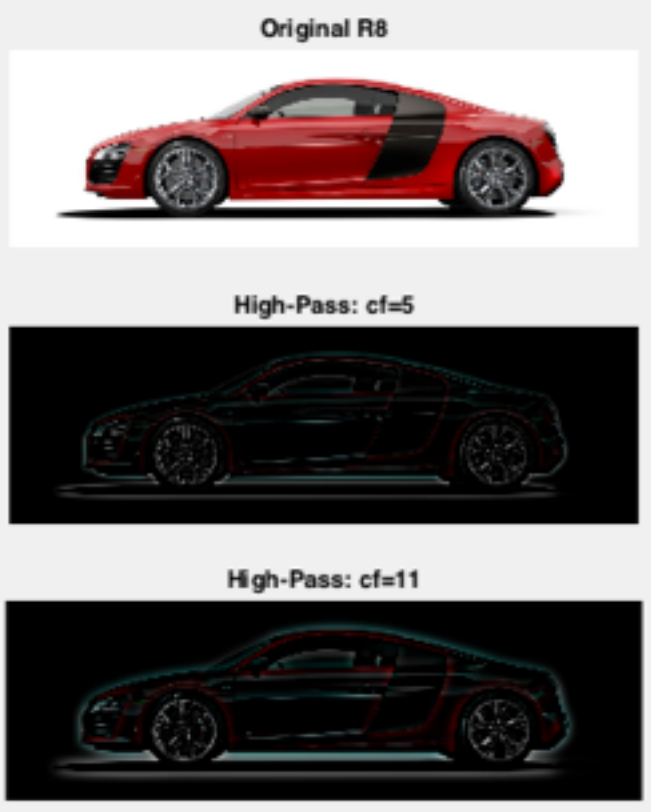
Report

This project need I to combine two different images by applying low-frequency and high-frequency filters, respectively. Then I can get a hybrid image. That means, at a close distance, the high-frequecny filtered image becomes more salient, but at a longer distance, the low-frequecny filter image becomes visible. So I use gaussian filters for the low-pass and high-pass filters.

Using **fspecial()** and **imfilter()** function to get the low-pass filtered image. Because high-pass filtered image equal to the original minus low-pass filtered image, so I have high-pass filtered image (High_pass(Image) = Image - Low_pass(I)). As we can see from the two picture below, when cf increase, low-pass filtered images become vague and the outline of high-pass filtered images is clear.



A hybrid image is a sum of a low-pass and a high-pass filtered image (Hybrid_image(I_1, I_2) = Low_pass(I_1) + High_pass(I_2)). For my project, I choose Audi R8 and its construction to get my hybrid image. The original images show below.

The hybrid image I get.R8 (Low, cf=5) Construction (High, cf=9)

For hybrid image, it's clearly to show the under construction of the car. When people view this image at a short distance, the car is seen under construction, but if you step away from the picture, you will see it final shape.