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0:00 Welcome back.

0:02 Now that we've learned that two-dimensional LSI systems, in producing the processed image, they perform the convolution of the input of the system with the impulses parts of the system and another through the signal. We can start getting our feet wet by playing around, in some sense, with various LSI image processing systems for which you know the impulse response.

0:25 So for example, if the impulse response that went through the system is flat, over, say, a 3×3 region, and flat means that its sample in the impulse response gives the same value. So for the 3×3 example, each sample has value equal to one over nine.

0:41 So, in this case, what will the effect of such a system on an image going to be? You can write a simple program or a few lines to perform the convolution of the two images and we can utilize any images you have available. So, we can find out what this effect is going to be. We will see that the high frequency content of the images is reduced. The image will look blurry. The system with this 3×3 flat impulse response is a low-pass system, or a low-pass filter. We will also see examples of systems which would use the low frequency formation in an image and allow the high frequencies to go through the system unchanged.

1:22 In this case, the edges in the image at the output of the system are pronounced.

1:28 Such systems are referred to as high-pass systems or high-pass filters.

1:34 We will show such examples early on in the course so that you obtain a good feel about the manipulation or filtering of images. We jump the gun, in some sense, in this segment by providing image noise smoothing examples and the extraction of edges in an image, which is a topic that we'll cover in week five. And this is the topic of image enhancement.