DIGITAL IMAGE PROCESSING

Image Enhancement in Frequency Domain: Session 2

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Today's Lecture

- **Image Enhancement in Frequency Domain**
  - **Filtering in Frequency Domain**

Image Enhancement in Frequency Domai

Properties of 2-D DFT: **Fourier Spectrum and Phase Angle**

Image Enhancement in Frequency Domain

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Filtering in Frequency Domain: **Notch Filter**

In a filter H(u,v) that is 0 at the center of the transform and 1 elsewhere, what's the output image?

Image Enhancement in Frequency Domain

Filtering in Frequency Domain: **Properties**

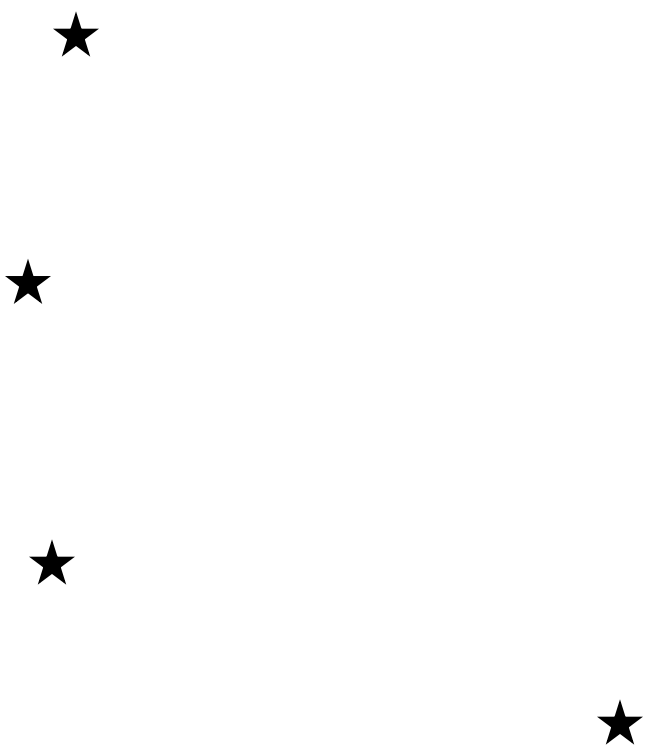
- Low frequencies in the Fourier transform are responsible for the general gray-level appearance of an image over smooth regions.
- High frequencies are responsible for detail, such as edges and noise.
- A filter that attenuates high frequencies while “passing” the low frequencies is called *lowpass filter.*
- A filter that attenuates low frequencies while “passing” the high frequencies is called *highpass filter.*

Image Enhancement in Frequency Domain

Filtering in Frequency Domain

Image Enhancement in Frequency Domain

2-D Convolution Theorem



Next Class

- **Image Enhancement in Frequency Domain**
  - **Filtering in Frequency Domain**

Thank you:
Question?