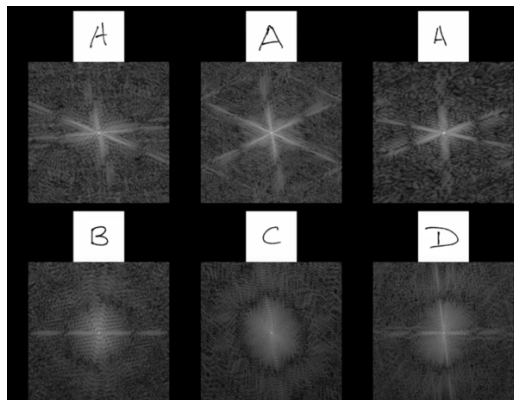
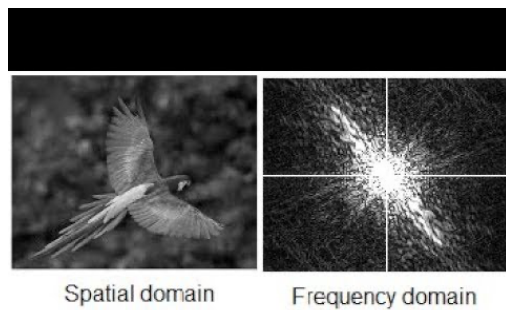


What is the Fourier transformation and what is it for?

- Helps to model a signal into a mathematical function representation.

Is **used to** decompose an image into its sine and cosine components. The output of the **transformation** represents the image in the **Fourier** or frequency domain, while the input image is the spatial domain equivalent.



What is an FIR filter?

- Finite impulse response is a filter whose impulse responses of finite duration, because it settles to zero in finite time. This is in contrast

What an IIR filter?

- Infinite impulse response (IIR) filters, may have internal feedback and may continue to respond indefinitely (usually decaying).

Sr No	FIR Digital Filter	IIR Digital Filter
1	FIR system has finite duration unit sample response. i.e $h(n) = 0$ for $n < 0$ and $n \geq M$ Thus the unit sample response exists for the duration from 0 to M-1.	IIR system has infinite duration unit sample response. i. e $h(n) = 0$ for $n < 0$ Thus the unit sample response exists for the duration from 0 to ∞ .
2	FIR systems are non recursive. Thus output of FIR filter depends upon present and past inputs.	IIR systems are recursive. Thus they use feedback. Thus output of IIR filter depends upon present and past inputs as well as past outputs
3	Difference equation of the LSI system for FIR filters becomes $y(n) = \sum_{k=0}^M b_k x(n-k)$	Difference equation of the LSI system for IIR filters becomes $y(n) = -\sum_{k=1}^N a_k y(n-k) + \sum_{k=0}^M b_k x(n-k)$
4	FIR systems has limited or finite memory requirements.	IIR system requires infinite memory.