

Wavelets - Mathematical functions that cut up data into different frequency components and then study each component with a resolution matched to its scale

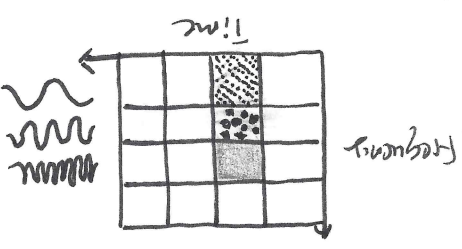
Fourier transforms - translates a function in the time domain into a func. in the frequency domain.

- typically used for audio signals
- Discrete Fourier transforms (DFT) - estimates FT from a function of finite num of points
- windowed Fourier transform (WFT) - if the signal is non-periodic, the sum of the periodic func. are not accurate. Instead the signal is chopped up into sections and analysed separately
- Fast Fourier transforms (FFT) - produces a DFT if the samples are uniformly spaced in time

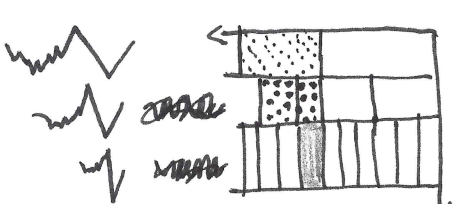
\* Note there are two important distinctions between wavelets and FTs:

- 1) wavelets are localized in space, thus variable in different windows/sizes. FTs are not

ex FT of square wave:



wavelet



- 2) FTs utilize ODE base formulas, sines/cos, whereas wavelets have different families of formulas