



INTRODUCTION TO COMPUTER MUSIC

SPECTRAL PROCESSING

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Review of Fourier Transform

Real part:

$$R(\omega) = \int_{-\infty}^{\infty} f(t) \cos \omega t dt$$

Imaginary part:

$$X(\omega) = - \int_{-\infty}^{\infty} f(t) \sin \omega t dt$$

Discrete Fourier Transform

$$R_k = \sum_{i=0}^{N-1} x_i \cos(2\pi ki / N)$$

$$X_k = -\sum_{i=0}^{N-1} x_i \sin(2\pi ki / N)$$

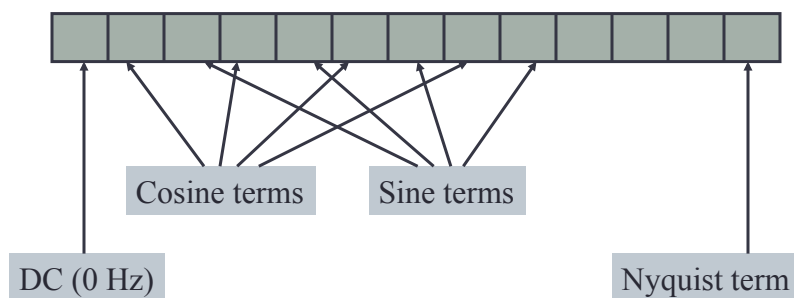
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Computing Spectra in Nyquist

- Representation: spectra appear as floating point arrays.
- (More detail in Week 5 slides)



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What does the array mean?

