



## Harry Nyquist

1889-1976

Harry Nyquist was a Swedish-American engineer who made fundamental contributions to the quantitative understanding of data transmission and information theory.

Shortly after earning his doctorate in 1917 Nyquist, while working at AT&T, began to adapt telephone circuits for transmission of images. By 1924 he had developed "telephotography," the basis for all modern fax machines.

However Nyquist's most significant work was his 1928 paper, "Certain Topics In Telegraph Transmission Theory." It centered on his theoretical work on the bandwidth requirements for data transmission and the basics of sampling continuous analog signals and converting them to digital form, now better known as the Nyquist Sampling Theorem. One of the central tenets of digital imaging, this theorem specifies that the highest reproducible frequency in a digital system is equal to or less than one-half of the sampling frequency.

Nyquist received numerous honors for his work including the National Academy of Engineering Founders' Medal of Honor, the Ballantine Medal of the Franklin Institute, the IEEE's Medal of Honor, and the American Society of Mechanical Engineers Oldenburger Medal.