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Assignment Image Processing Lesson 10: Sampling

Research on Nyquist sampling theorem and summarize by your own knowledge? (maximum 1 page including 1 or 2 figures)

The **Nyquist sampling theorem** is a fundamental theory in signal processing that specifies the minimal sample rate needed to accurately record and reconstruct an analog signal into a digital representation. The theorem ensures reliable reconstruction of signals in the digital realm by addressing both frequency and time factors, preventing data loss during the conversion process.

The Nyquist theorem can be visualized in both the frequency and time domain:

* Frequency Domain: The frequency spectrum of the signal is displayed horizontally. Vertical lines depict potential sample frequencies spaced according to the sampling rate. Aliasing happens when the space between lines is less than twice the maximum signal frequency (2B).