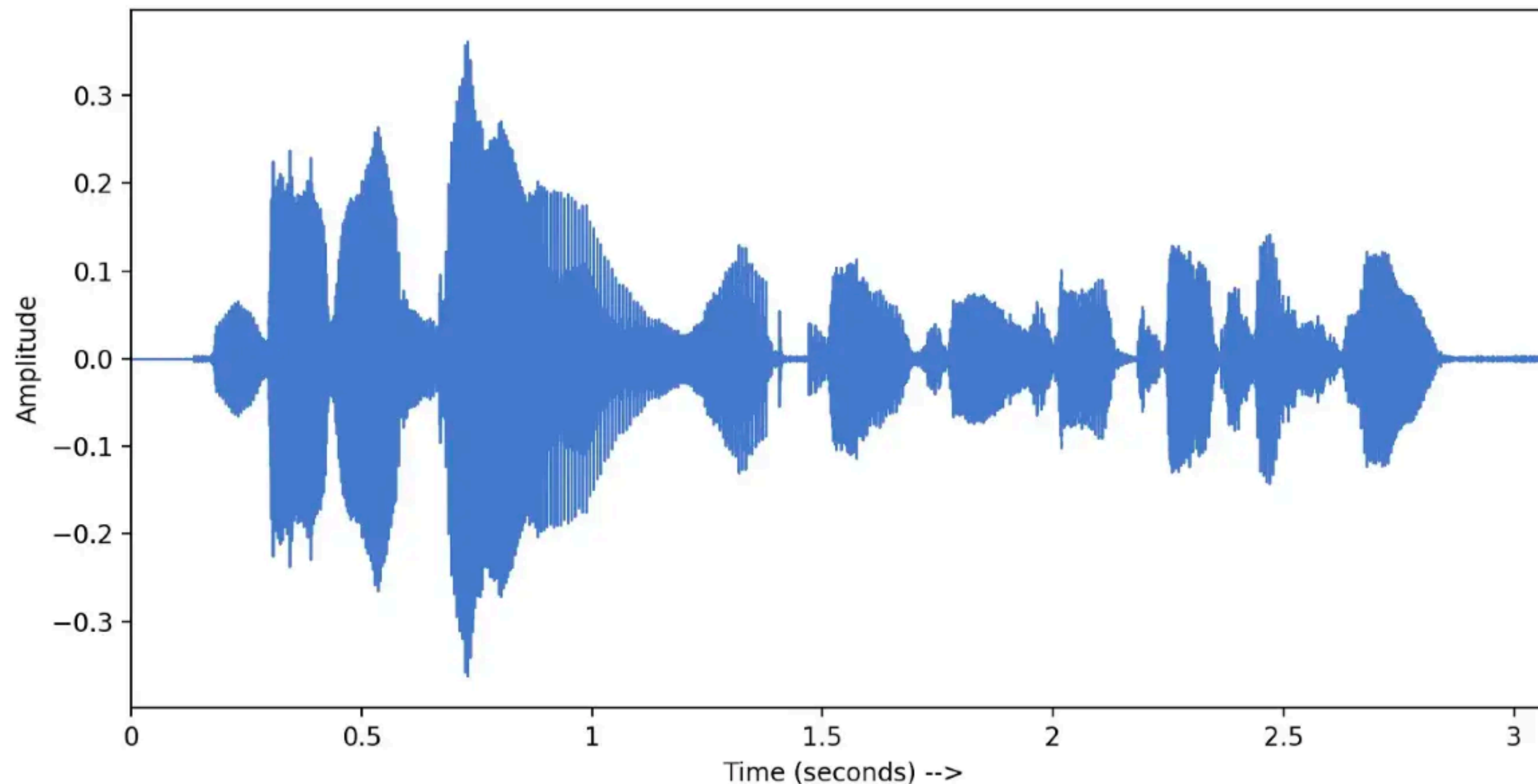


Digital sound waves

- ▶ Microphones convert sound pressure variations into changes in continuous electrical voltage
 - They capture changes in air pressure to record sound (continuous electrical signal)



Digital sound waves

- ▶ **Problem:** Computers deal with discrete data (zeros and ones)
 - We need to convert (sample) the continuous signal into digital presentation
 - **Sampling** converts a time-varying voltage signal into a discrete-time signal, a sequence of real numbers.
 - **Quantization** replaces each real number with an approximation from a finite set of discrete values.