# 信导作业topic8

Last class,Mr Hei gave us a very interesting guide to our major.

I have learned Noise

*For electronic noise arising from outside sources, see* [*electromagnetic compatibility*](https://en.wikipedia.org/wiki/Electromagnetic_compatibility) *and* [*electromagnetic interference*](https://en.wikipedia.org/wiki/Electromagnetic_interference)*. For acoustic noise due to electromagnetic fields, see* [*electromagnetically-excited acoustic noise and vibration*](https://en.wikipedia.org/wiki/Electromagnetically-excited_acoustic_noise_and_vibration)*. For other uses, see* [*Noise (disambiguation)*](https://en.wikipedia.org/wiki/Noise_(disambiguation))*.*

In electronics, **noise** is an unwanted disturbance in an electrical signal.[[1]](https://en.wikipedia.org/wiki/Noise_%28electronics%29#cite_note-noise-1):5 Noise generated by electronic devices varies greatly as it is produced by several different effects.

In [communication systems](https://en.wikipedia.org/wiki/Communication_system), noise is an error or undesired random disturbance of a useful information [signal](https://en.wikipedia.org/wiki/Signal). The noise is a summation of unwanted or disturbing energy from natural and sometimes man-made sources. Noise is, however, typically distinguished from [interference](https://en.wikipedia.org/wiki/Interference_(communication)),[[a]](https://en.wikipedia.org/wiki/Noise_%28electronics%29#cite_note-2) for example in the [signal-to-noise ratio](https://en.wikipedia.org/wiki/Signal-to-noise_ratio) (SNR), [signal-to-interference ratio](https://en.wikipedia.org/wiki/Signal-to-interference_ratio) (SIR) and [signal-to-noise plus interference ratio](https://en.wikipedia.org/wiki/Signal_to_noise_plus_interference) (SNIR) measures. Noise is also typically distinguished from [distortion](https://en.wikipedia.org/wiki/Distortion), which is an unwanted systematic alteration of the signal waveform by the communication equipment, for example in [signal-to-noise and distortion ratio](https://en.wikipedia.org/wiki/Signal-to-noise_and_distortion_ratio) (SINAD) and [total harmonic distortion plus noise](https://en.wikipedia.org/wiki/Total_harmonic_distortion_plus_noise) (THD+N) measures.

While noise is generally unwanted, it can serve a useful purpose in some applications, such as [random number generation](https://en.wikipedia.org/wiki/Random_number_generation) or [dither](https://en.wikipedia.org/wiki/Dither).

Different types of noise are generated by different devices and different processes. [Thermal noise](https://en.wikipedia.org/wiki/Thermal_noise) is unavoidable at non-zero temperature (see [fluctuation-dissipation theorem](https://en.wikipedia.org/wiki/Fluctuation-dissipation_theorem)), while other types depend mostly on device type (such as [shot noise](https://en.wikipedia.org/wiki/Shot_noise),[[1]](https://en.wikipedia.org/wiki/Noise_%28electronics%29#cite_note-noise-1)[[2]](https://en.wikipedia.org/wiki/Noise_%28electronics%29#cite_note-shot-3) which needs a steep potential barrier) or manufacturing quality and [semiconductor](https://en.wikipedia.org/wiki/Semiconductor) defects, such as conductance fluctuations, including [1/f noise](https://en.wikipedia.org/wiki/1/f_noise).

I think it is very important to our life.

I want to learn more about this.

About Additive Noise ,I already learned a little,but also have some questions.I will continue to learn about Additive Noise.I am very interested about it.

Wish Mr Hei to teach us more about our major.

By the learning,I have a confident heart to my major and future.Mr Hei,thank you very much.

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