Vorlesungsskript
Technische und logische Grundlagen der Informatik

1. Signale im Zeit und Frequenzbereich

- Signal is the physical representation of data
- Analog signal is a sequence of continuous values
- Digital signal is a sequence of discrete values
- Data is converted to signal which is sent over a transmission channel
- Transmission channel = access points + physical medium carrying signal
- The need to convert - Quantization
  - Computers can only deal with digital data => discrete signal
  - Physical mediums are by nature analog => continuous signal
  - Must convert from digital signal to analog signal (and vice versa)
- The need to measure – Sampling
  - Computers can only deal with discrete time
  - Physical mediums' state vary continuously
  - Must rely on periodical measurements of the physical medium

1.1. Grundlegende Signalverarbeitung

1.2. Periodische Signale

1.2.1. Signalkomposition

2. Boolesche Algebra

Satz 1 (Gauß Summe)**.**

Beweis. Der Beweis obliegt dem Leser als Übungsaufgabe. □

Aufgabe 2.1. (Programmargumente ausgeben) Das folgende Programm iteriert über die Konsolenargumente, inklusive des Programmaufrufs:

```
1 int main(int argc, char *argv[])
2 {
3     /* Loops over program arguments */
4     for (int i = 0; i <= argc; i++) {
5         printf("Argument %d: \"%s\"\n", argv[i]);
```

```
6         }
7 }
```