Introduction to Machine Learning

Computable Functions

compstat-lmu.github.io/lecture_i2ml

COMPUTABLE FUNCTIONS

- This seems like a very general and powerful concept. Computable function are also called *algorithms*.
- For many kinds of problems, the mapping f can be constructed explicitly, either as an actual mathematical mapping or in terms of a finite number of well-defined computable steps, i.e., as an algorithm that computes f, for example:
  - $f(\text{list of elements}) = \text{count of distinct elements}$
  - $f(\text{polynomial function}) = \text{locations of extrem points}$
  - $f(\text{map of roads}) = \text{shortest route from A to B}$
- Computer scientists study which kinds of functions are computable, how algorithms to compute a given f scale in terms of input sizes, and how to properly construct and implement them.
- Obviously, such manual or explicit construction of f varies from entirely simple and obvious to nearly or fully impossible.