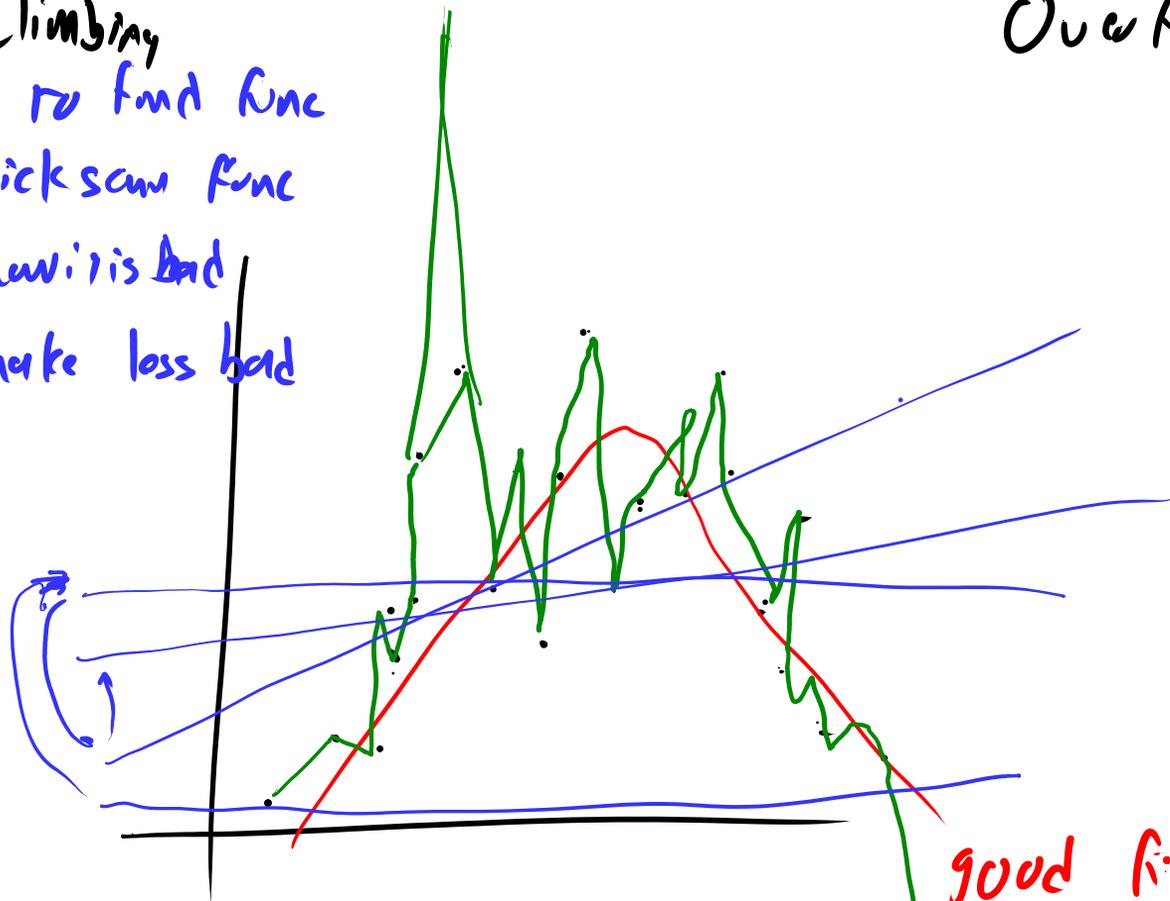# Hill Climbing

- way to find func
  1. pick some func
  2. how it is bad
  3. make loss bad

Overfitting

good fit: march pattern in data

Overfit: matches details of data

Un Supervised

- describes training data

Supervised:
$$(input, output)$$

(study habit, grade)

given your study habits,
expect this grade
↖ continuous

Unsupervised
$$(input)$$

(study habits)

3 types: every day
              cram
categorical   never

Classification

input → one of a provided set of options

↳ in: image   out: word or phrase

Clustring

input → one of a (learned) set of options

↳ in: creature   out: species (before those were decided)

Generative

input → missing parts
incomplete

↳ in: quest.   out: next word   answer

in: picture w/ miss pixel   out: those pixels

Regression

input → output
measurable parts   prediction, un measurable parts
Study hours   grade

↳ in: height   out: weight

Ways to learn

Offline —

Online
humans

Pretrain

Fine-tune

1. get training data
2. find a good function   ] learning
3. use the function I found] use

↑ software
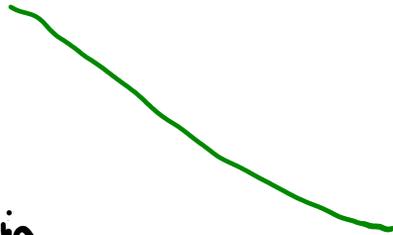
Repeat:
1. get one bit of train data
2. refine the function
3. use once

Pre train   +   fine - tune ⟶

↓   later w/ "good" data

offline w/ all available data

learn English from all Internet   learn from helpful
                                               Q&A sites

Categorical   **Continuous**

describe   output

words, group   numbers