

Why Assignments Are Too Easy?

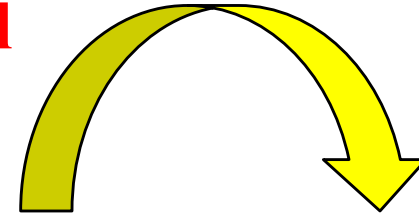
A: It's intentional. To provide hands-on seeds, so as to start using tools (MPI, OpenMP, CUDA, DPC++, *etc.*, or other mathematical & engineering tools at large) in a self-sustained use-learn cycle

Most effective way to learn a new tool

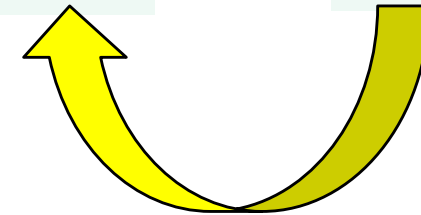
Understand
the smallest set
of essential
mechanisms
by reading a
minimalist
program



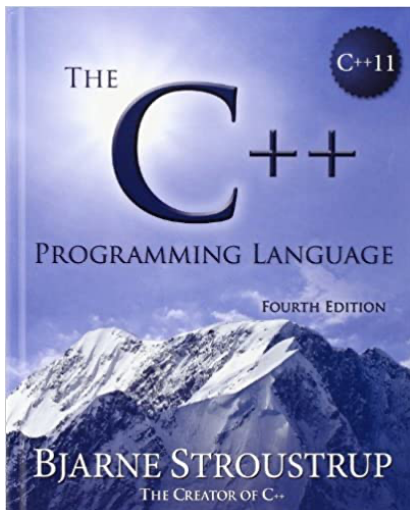
Use the toolkit
to solve one's
own problem



Expand the
toolkit by
adding



Self-sustained
Use-learn cycle



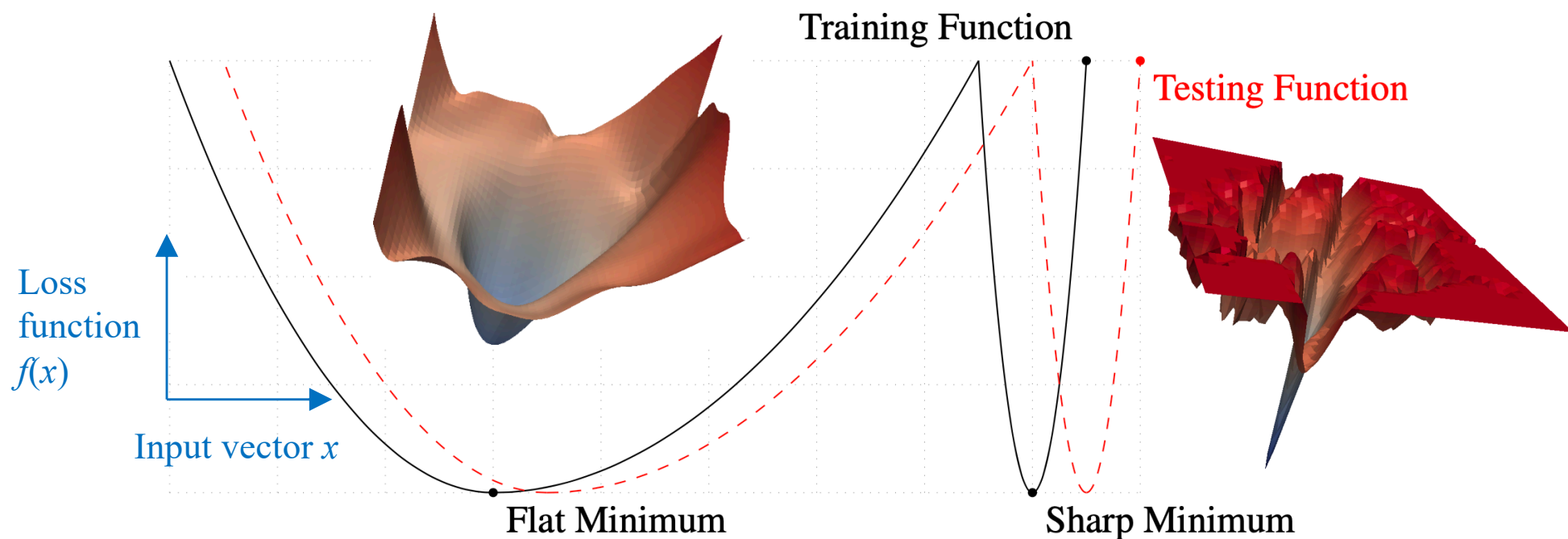
Start the cycle in your final project

Alternative way

“You bought a 1300+ page (480K+ word) book for \$40 or \$60, not a subscription service. How much support do you expect?”

Learning-Theory Foundation

- **Minimum description length (MDL) theory:** Models described by fewer bits (*i.e.*, low Kolmogorov complexity) are more generalizable
- **Spectral theory:** Low-bit (low-complexity) models have flatter loss landscape



Keskar et al., ICLR 2017 [<https://arxiv.org/abs/1609.04836>]

Forest et al., ICLR 2021 [<https://arxiv.org/abs/2010.01412>]