

# Why Assignments Are Too Easy?

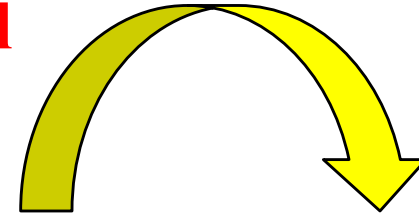
**A:** It's intentional. To provide hands-on seeds for start using tools (MPI, OpenMP, CUDA, DPC++, *etc.*, or other mathematical & engineering tools at large) in a self-sustained use-learn cycle

**Most effective way to learn a new tool**

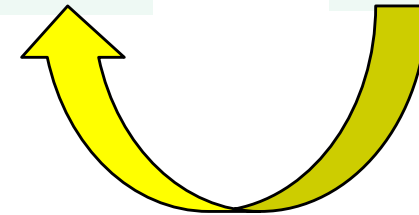
Understand  
the smallest set  
of essential  
mechanisms  
by reading a  
minimalist  
program



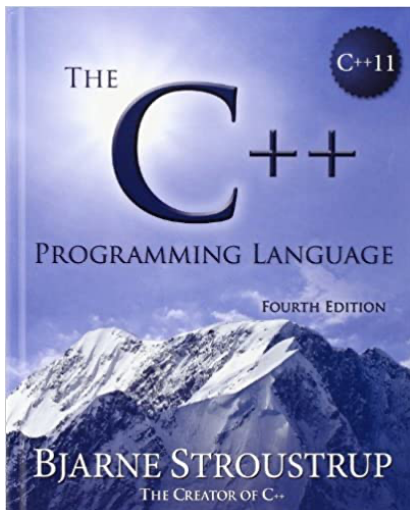
Use the toolkit  
to solve one's  
own problem



Expand the  
toolkit by  
adding



Self-sustained  
Use-learn cycle



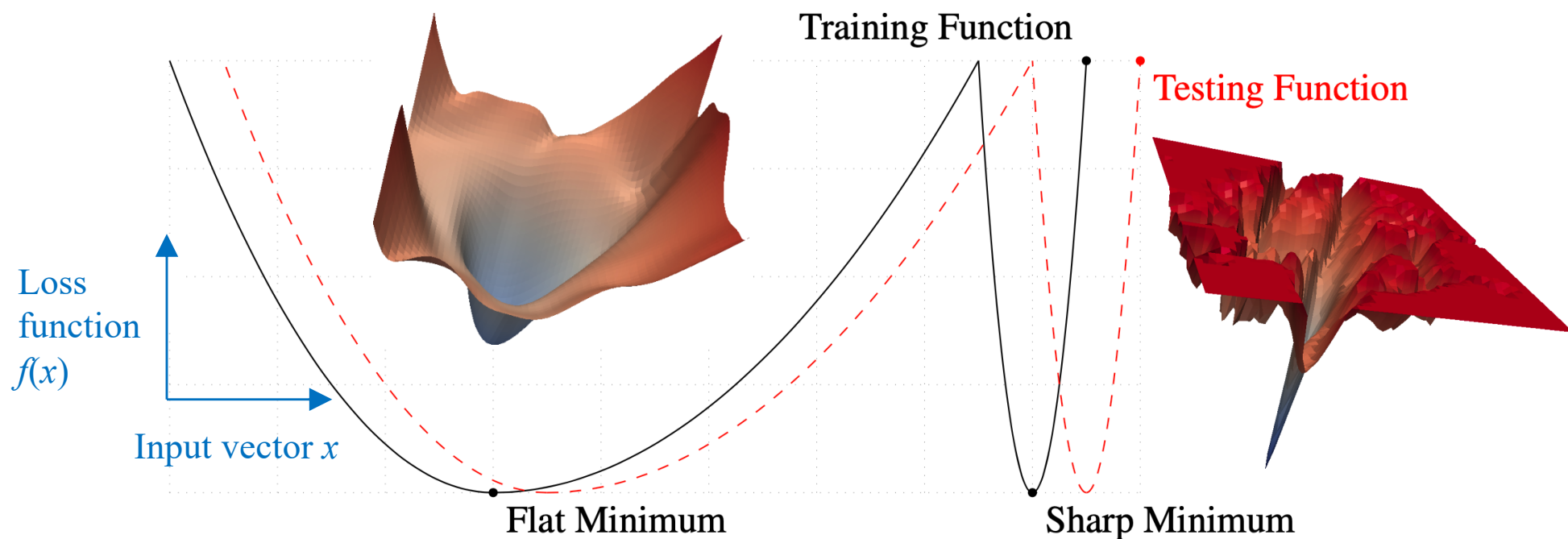
**Start the cycle in your final project**

**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>]