1] Machine Learning

categories :
- No feedback — clustering
- Rewards / Penalties — reinforcement learning
- Labels — (semi-) supervised learning
  - ↓ learn a functional mapping

hypothesis space = params + hyper-params

interpolation ✓ v.s. extrapolation ×

generalization

overfitting { caused by { noise, too many params
prevent : regularization

model exploration :
① start — a simple model
② when ① is good enough :
Test performance on training data
- good → check for overfitting
- bad → increase hypothesis space (改变 model size)

Loss : 可以优化 mean, variance, max, min ...

aim : find good params max/min Loss function

方案 :
- guess and check ?
- take from someone ?
- guess and improve ? ✓

↓

optimization method : gradient descent

$$\begin{cases} \underset{\theta}{\operatorname{argmin}}\ L(\theta) \\ \theta' = \theta + \gamma \Delta L \end{cases}$$

Note: It is possible that never get a good estimation