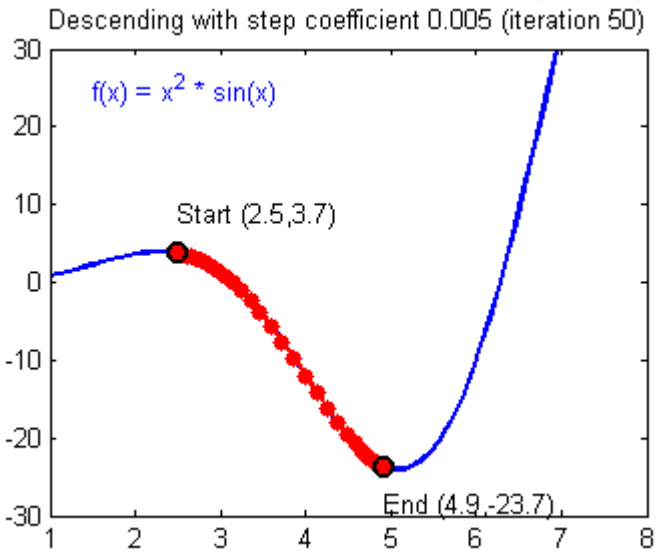
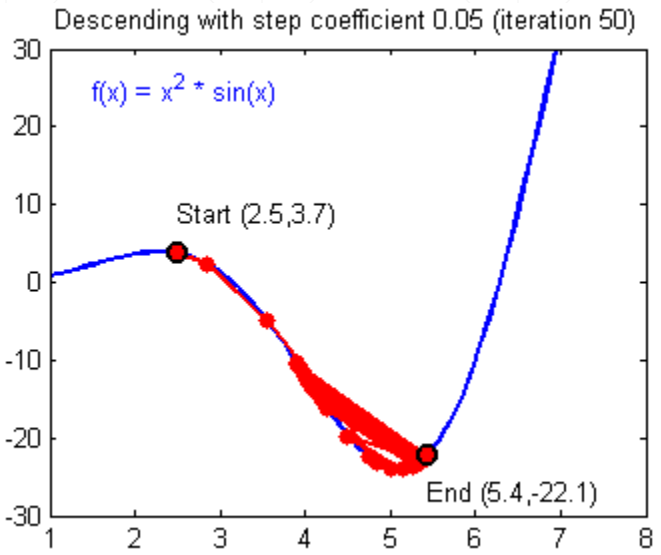
你好，梯度

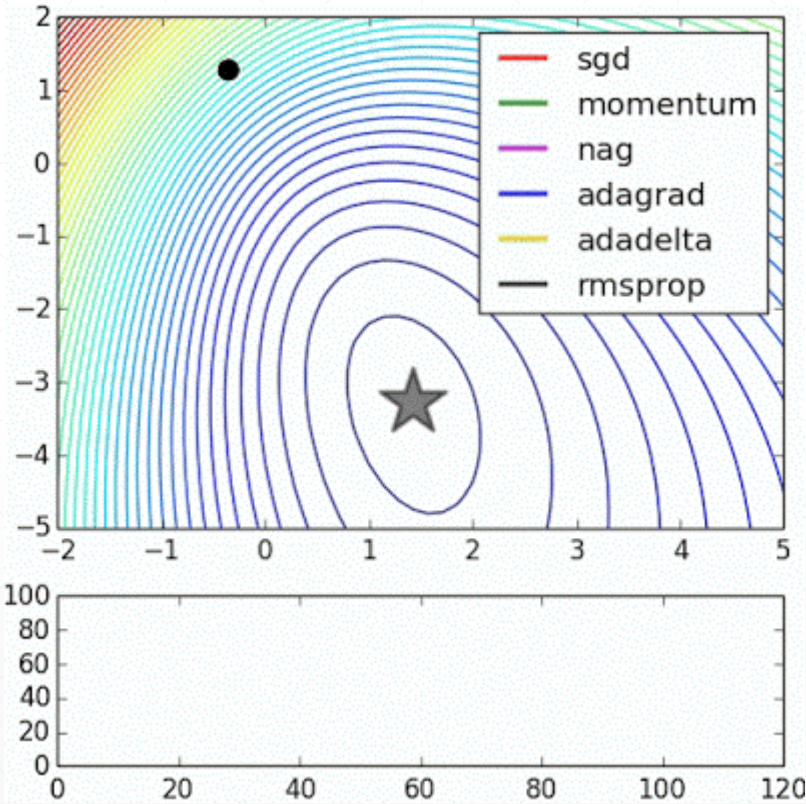
主讲人：龙良曲

Gradient Descent

- $loss = x^2 * \sin(x)$







How about Linear Equations

- $y = w * x + b$

  - 1.567 = w * 1 + b
  - 3.043 = w * 2 + b

  - W = 1.477
  - B = 0.089

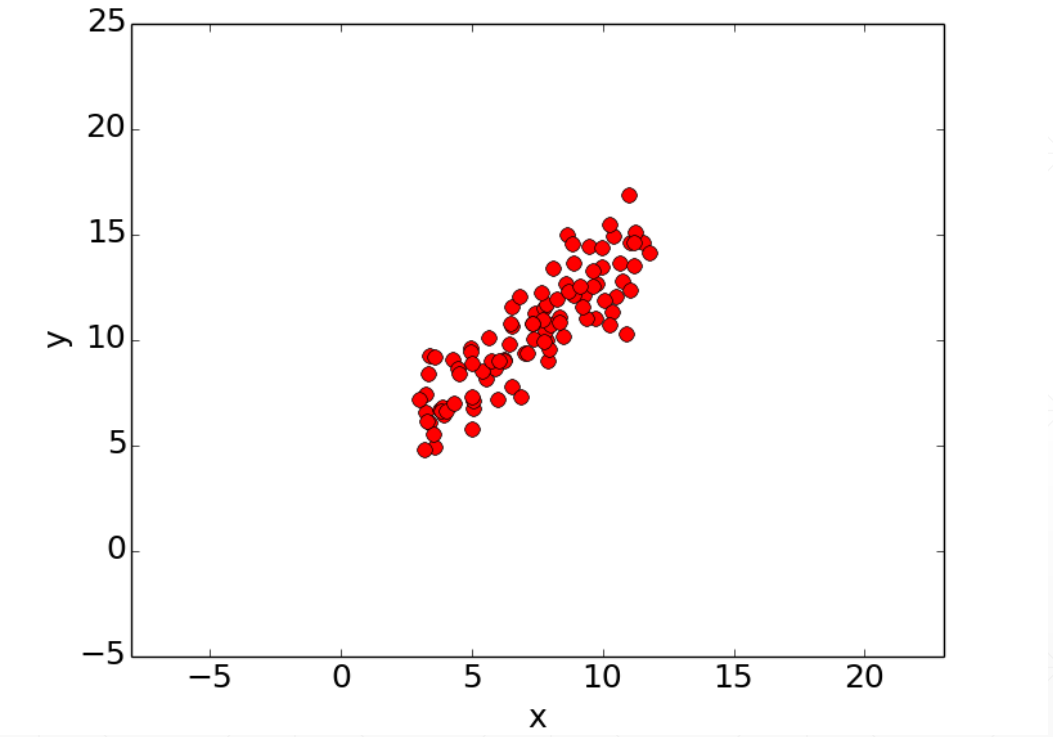
With Noise?

- $y = w * x + b + \epsilon$
- $\epsilon \backsim N(0.01, 1)$
  - 1.567 = w * 1 + b + eps
  - 3.043 = w * 2 + b + eps
  - 4.519 = w * 3 + b + eps
  - …

$$loss = (WX + b - y)^2$$

Let's see an example

- $y = 1.477 * x + 0.089 + \epsilon$

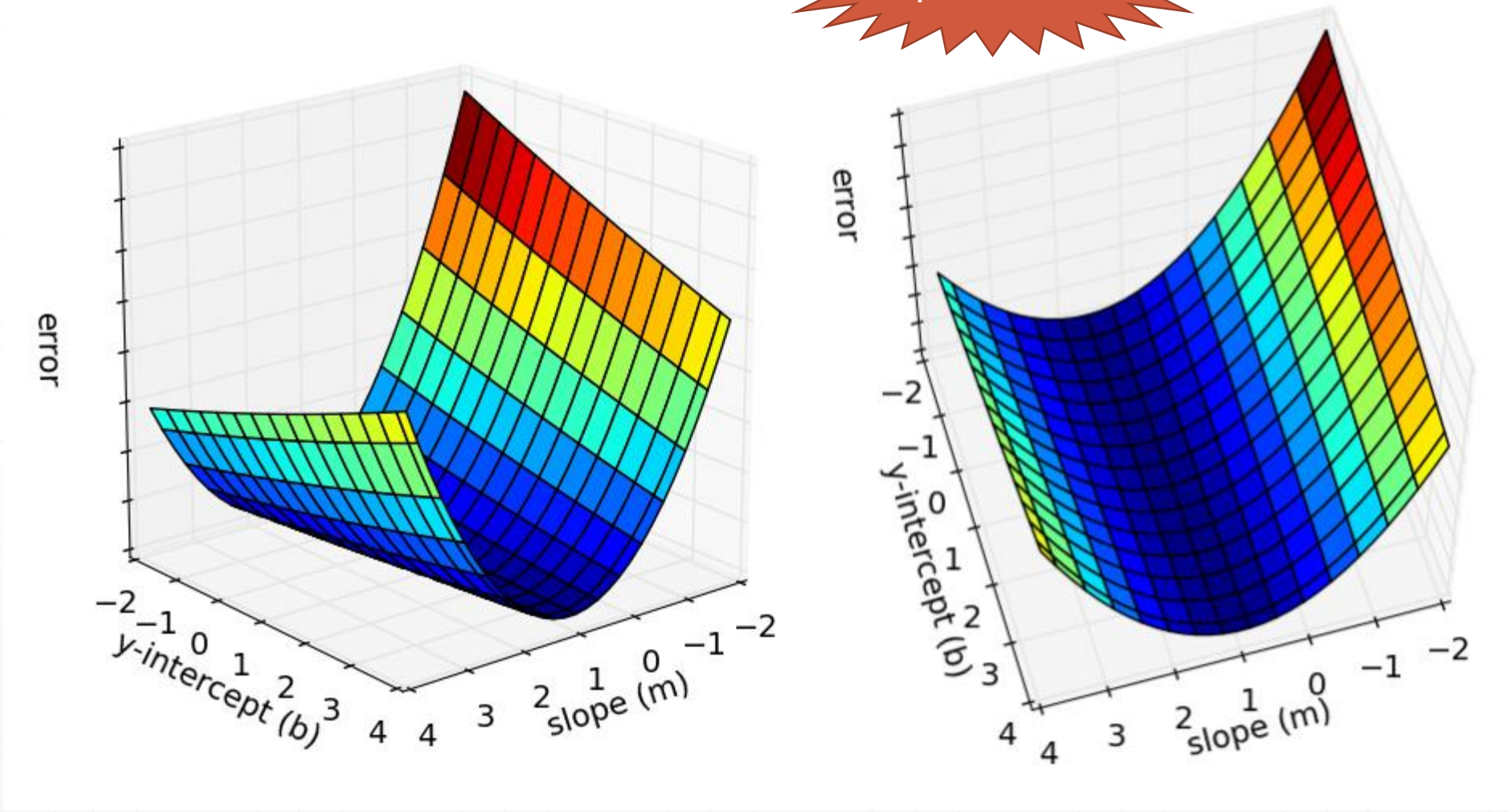


How to optimize

- $loss = \sum_i (w * x_i + b - y_i)^2$
- Minimize $loss$
- $w' * x + b' \rightarrow y$

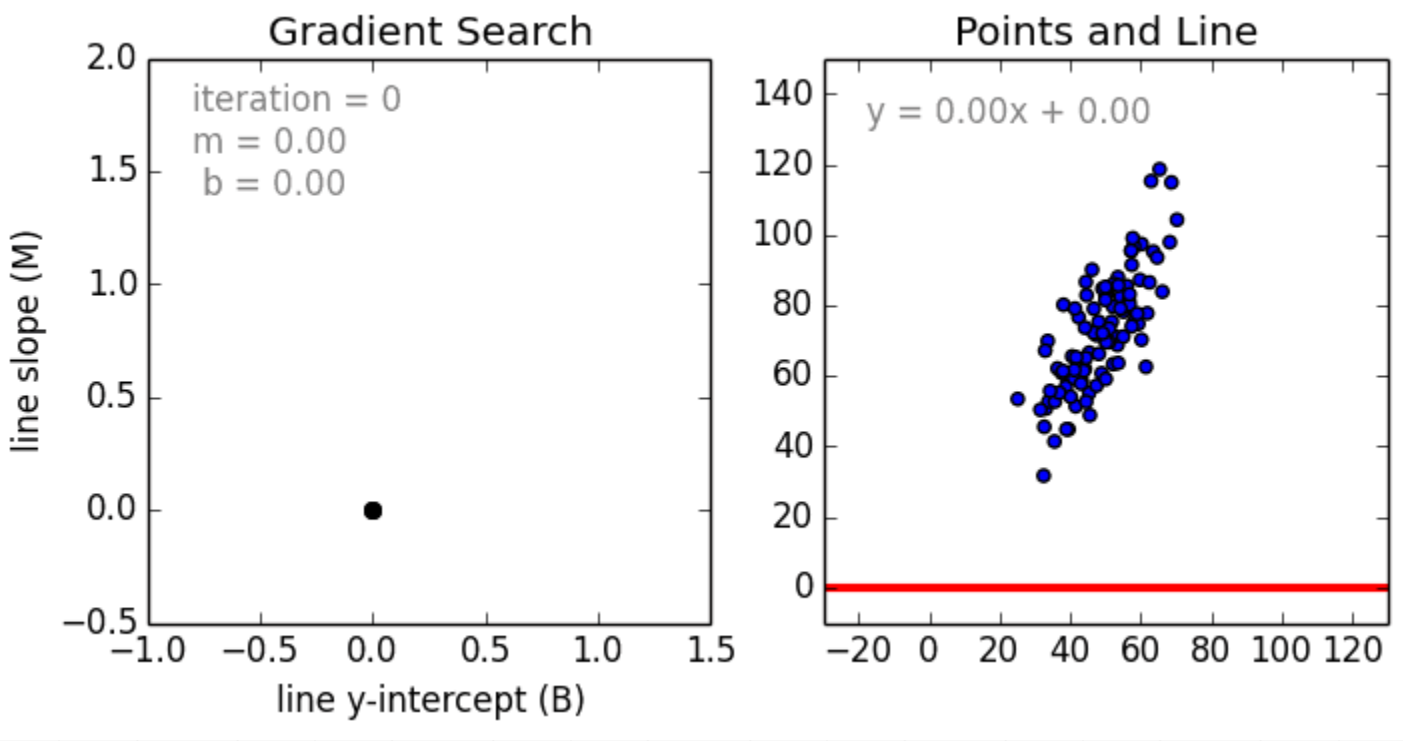
Heuristic Search

Convex Optimization



https://spin.atomicobject.com/2014/06/24/gradient-descent-linear-regression/

Learning Progress



Linear Regression

- Linear Regression
- Logistic Regression
- Classification

下一课时

实战Linear Regression

Thank You.