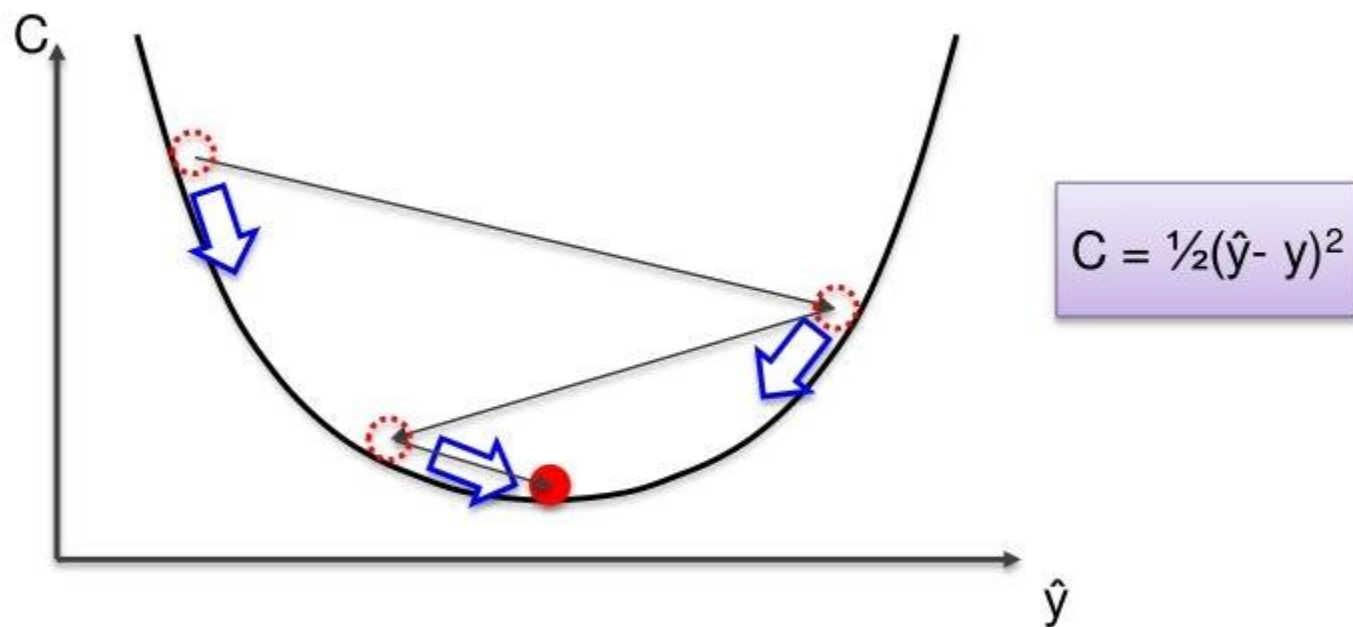
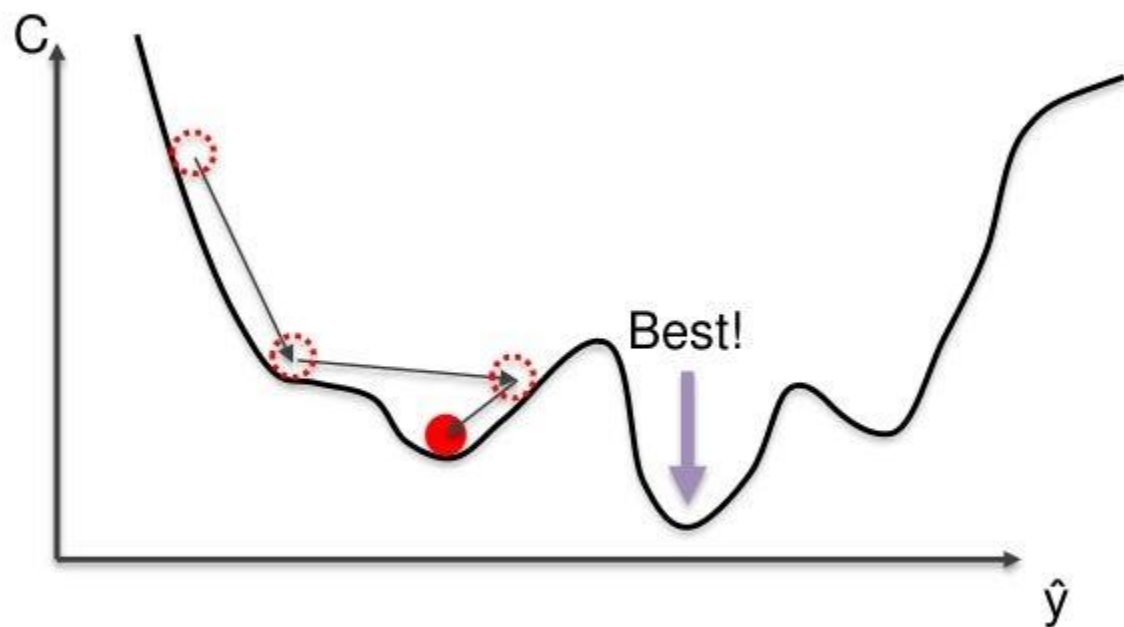


# Stochastic Gradient Descent

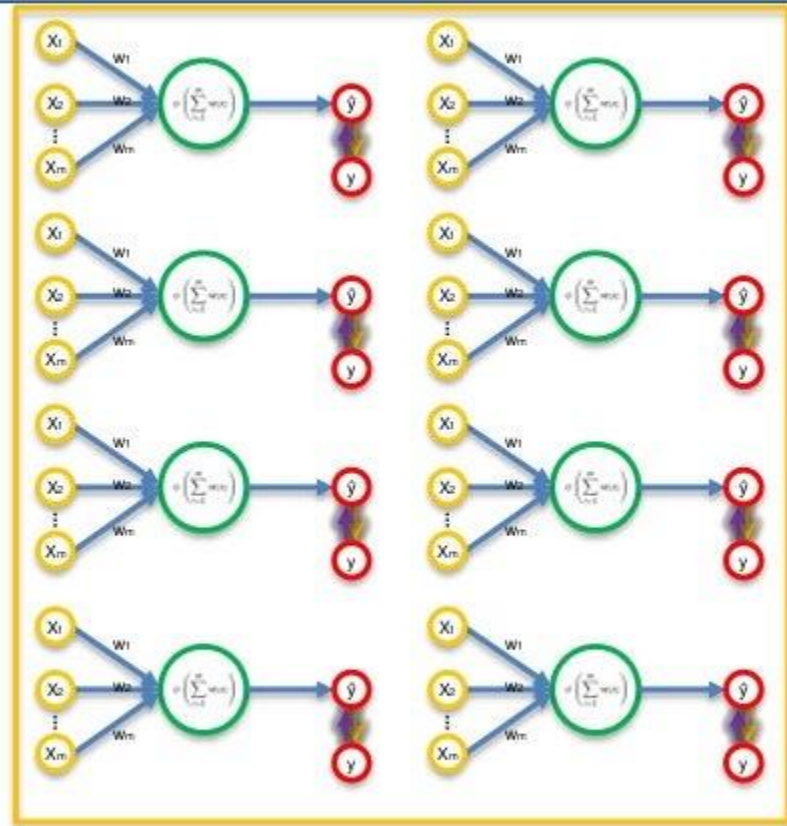
# Stochastic Gradient Descent



# Stochastic Gradient Descent

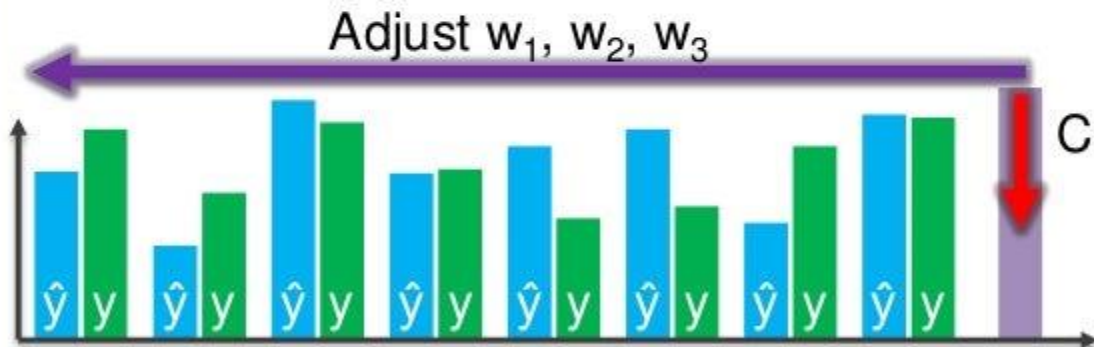


# Stochastic Gradient Descent

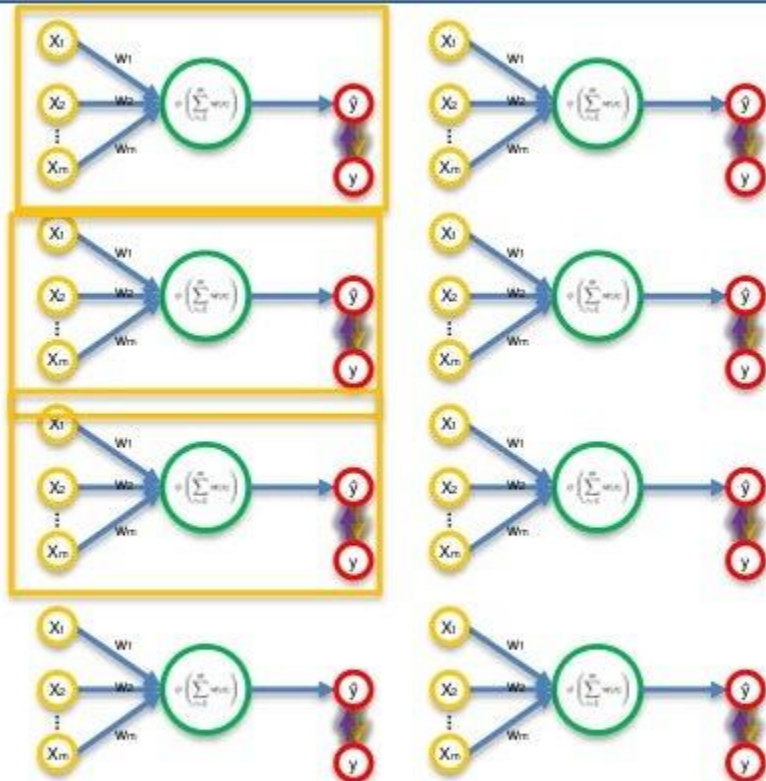


Row ID	Study Hrs	Sleep Hrs	Quiz	Exam
1	12	6	78%	93%
2	22	6.5	24%	68%
3	115	4	100%	95%
4	31	9	67%	75%
5	0	10	58%	51%
6	5	8	78%	60%
7	92	6	82%	89%
8	57	8	91%	97%

$$C = \sum \frac{1}{2}(\hat{y} - y)^2$$

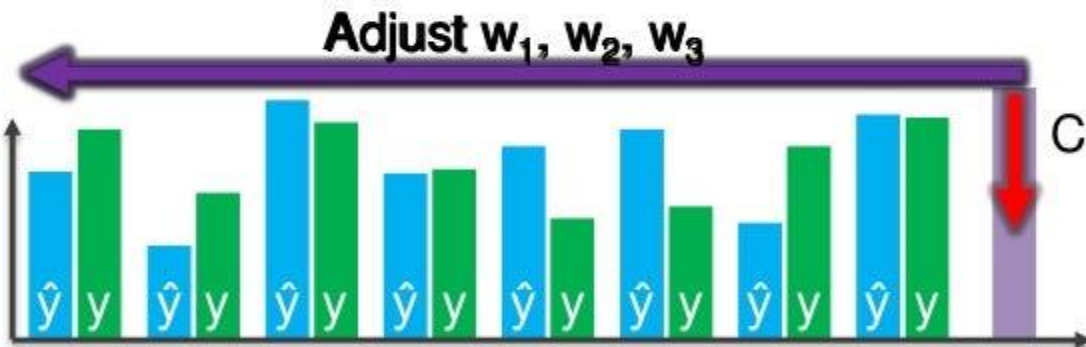


# Stochastic Gradient Descent



Row ID	Study Hrs	Sleep Hrs	Quiz	Exam
1	12	6	78%	93%
2	22	6.5	24%	68%
3	115	4	100%	95%
4	31	9	67%	75%
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8	57	8	91%	97%

$$C = \sum \frac{1}{2}(\hat{y} - y)^2$$





# Stochastic Gradient Descent

Upd w's ←

Row ID	Study Hrs	Sleep Hrs	Quiz	Exam
1	12	6	78%	93%
2	22	6.5	24%	68%
3	115	4	100%	95%
4	31	9	67%	75%
5	0	10	58%	51%
6	5	8	78%	60%
7	92	6	82%	89%
8	57	8	91%	97%

Batch  
Gradient  
Descent

Upd w's  
Upd w's  
Upd w's  
Upd w's  
Upd w's  
Upd w's  
Upd w's  
Upd w's

Row ID	Study Hrs	Sleep Hrs	Quiz	Exam
1	12	6	78%	93%
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3	115	4	100%	95%
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7	92	6	82%	89%
8	57	8	91%	97%

Stochastic  
Gradient  
Descent

# Stochastic Gradient Descent

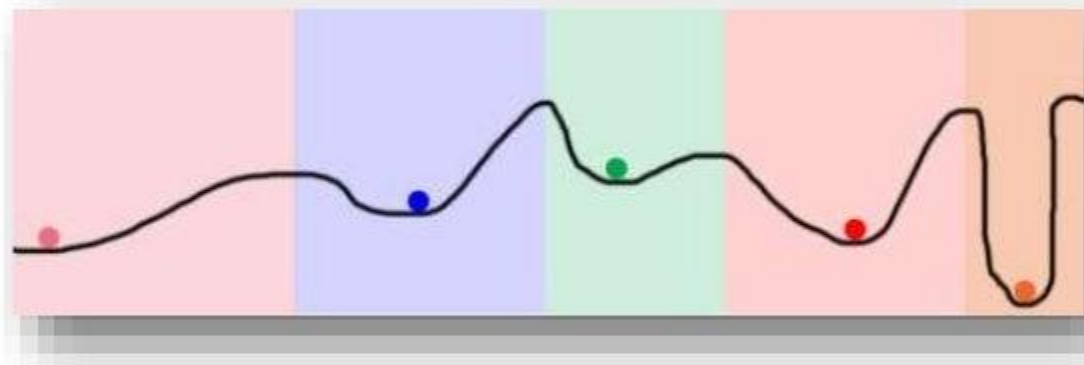
## Additional Reading:

*A Neural Network in 13 lines of Python (Part 2 - Gradient Descent)*

Andrew Trask (2015)

Link:

<https://iamtrask.github.io/2015/07/27/python-network-part2/>



# Stochastic Gradient Descent

## Additional Reading:

*Neural Networks and Deep Learning*

Michael Nielsen (2015)

Link:

<http://neuralnetworksanddeeplearning.com/chap2.html>

