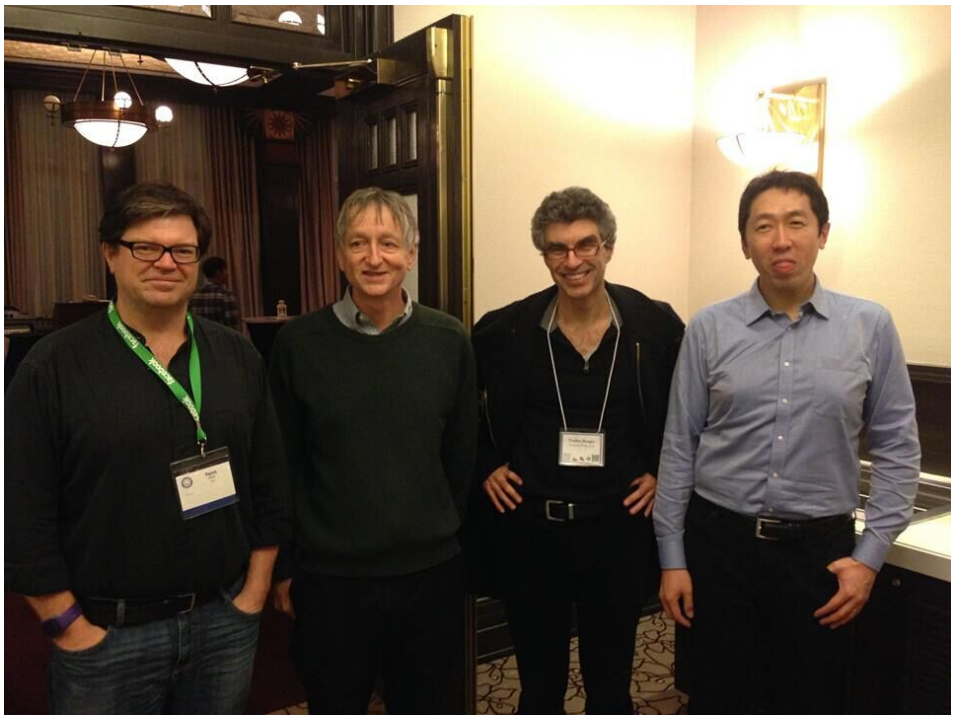
# Introdution

## Neural Networks

1. Convolutional Neural Network
2. Recurrent Neural Network
    - LSTM (Hochreiter & Schmidhuber. 1997)
    - Variants on LSTM
    - GRU (Cho, et al. 2014)
    - Attention and Memory (RAM NIPS Workshop) [6]
3. Recursive Neural Network
4. optimization [7, 8]
    - SGD
    - Momentum (1999)
    - Adagrad (2011)
    - Adadelta (2012)
    - RMSProp (2012)
    - Adam (2015)
5. library
    - Theano [9]
    - Torch [10]
    - TensorFlow [11]
    - Caffe [12]

6. Big Four



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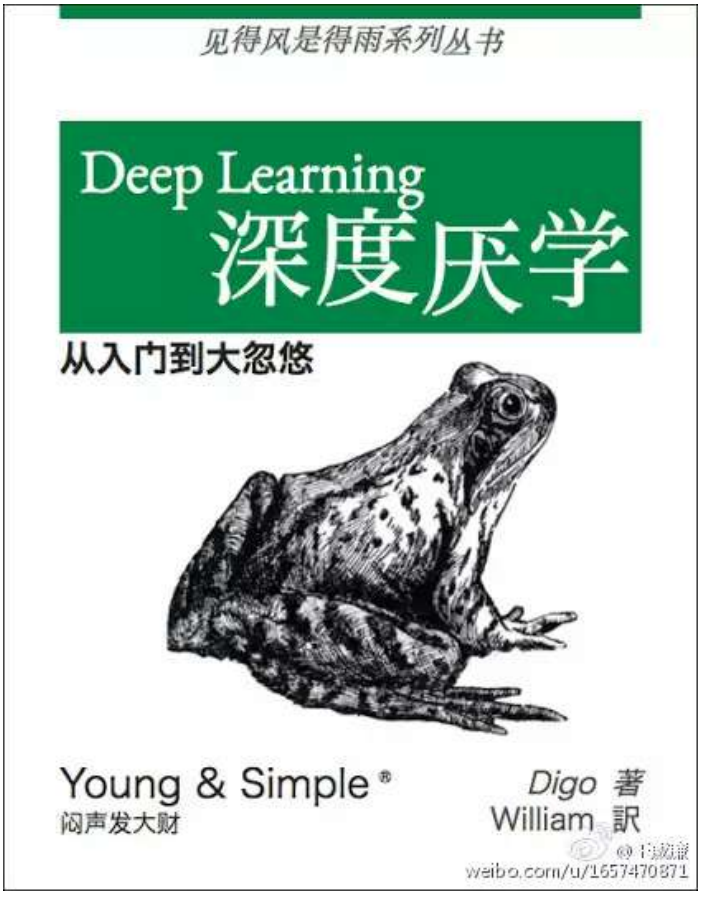
7. . . . . .




*Deep Learning*

# Reference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2. **神经网络和深度学习简史(一)**: http://www.almosthuman.cn/2016/01/23/koarh/
3. **神经网络和深度学习简史(二)**: http://www.almosthuman.cn/2016/01/27/tytne/
4. **神经网络和深度学习简史(三)**: http://www.almosthuman.cn/2016/02/02/bbtsz/
5. **神经网络和深度学习简史(四)**: http://www.almosthuman.cn/2016/02/28/13jpp/
6. **Reasoning, Attention, Memory (RAM) NIPS Workshop 2015**: http://www.thespermwhale.com/jaseweston/ram/
7. **An overview of gradient descent optimization algorithms**: http://sebastianruder.com/optimizing-gradient-descent/
8. **Optimization for Training DeepModels (Deep Learning Book)**: http://www.deeplearningbook.org/contents/optimization.html
9. **Theano**: http://deeplearning.net/software/theano/
10. **Torch**: http://torch.ch/
11. **TensorFlow**: https://www.tensorflow.org/
12. **Caffe**: http://caffe.berkeleyvision.org/