Idea Factory Intensive Program #2

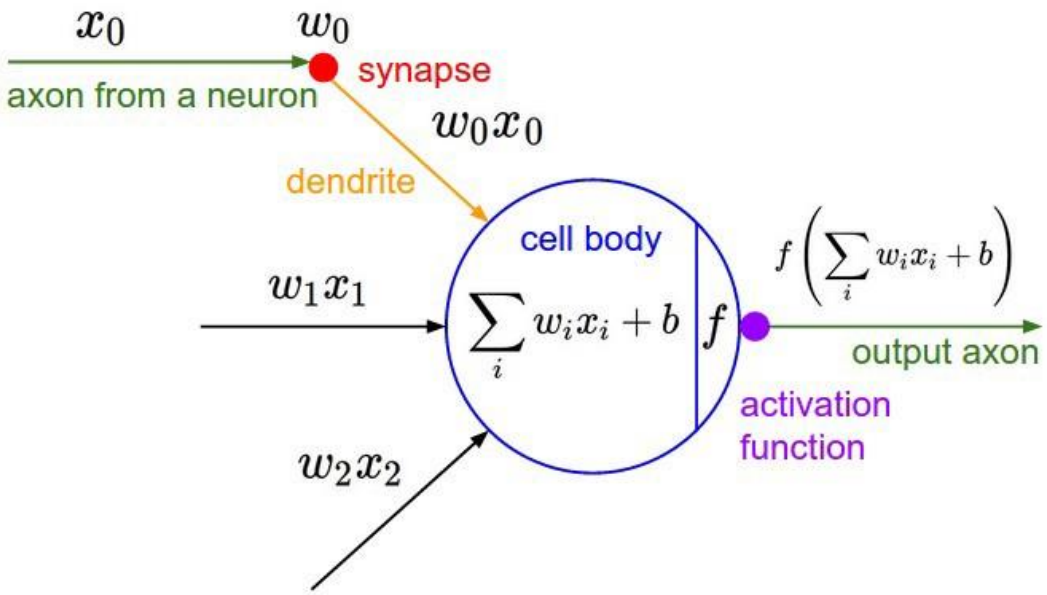
딥러닝 홀로서기 #2

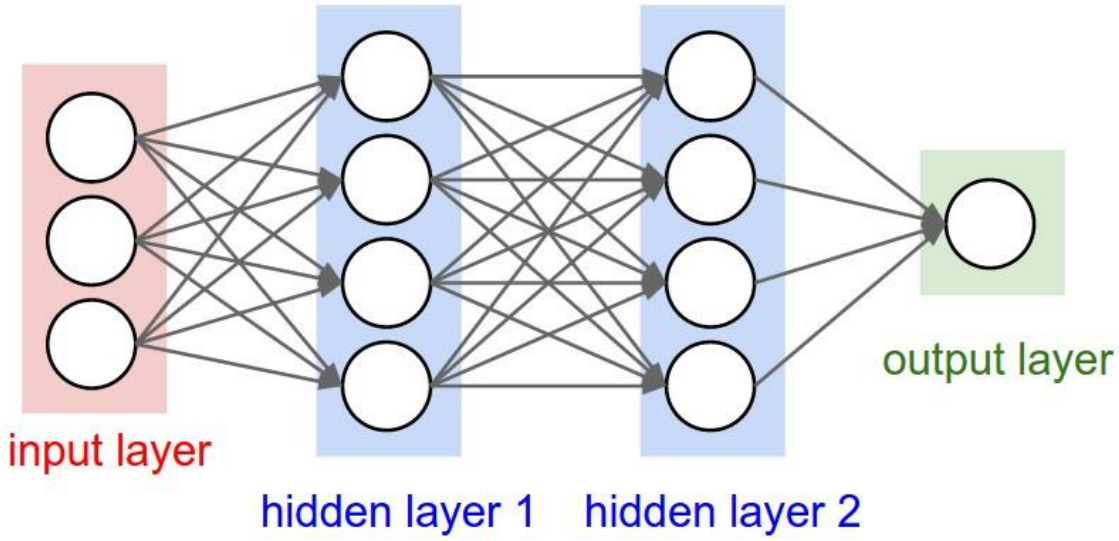
이론강의/PyTorch실습/코드리뷰

딥러닝(Deep Learning)에 관심이 있는 학생 발굴을 통한
딥러닝의 이론적 배경 강의 및 오픈소스 딥러닝 라이브러리 PyTorch를 활용한 실습

Multi–layer Perceptron

Solving XOR problem





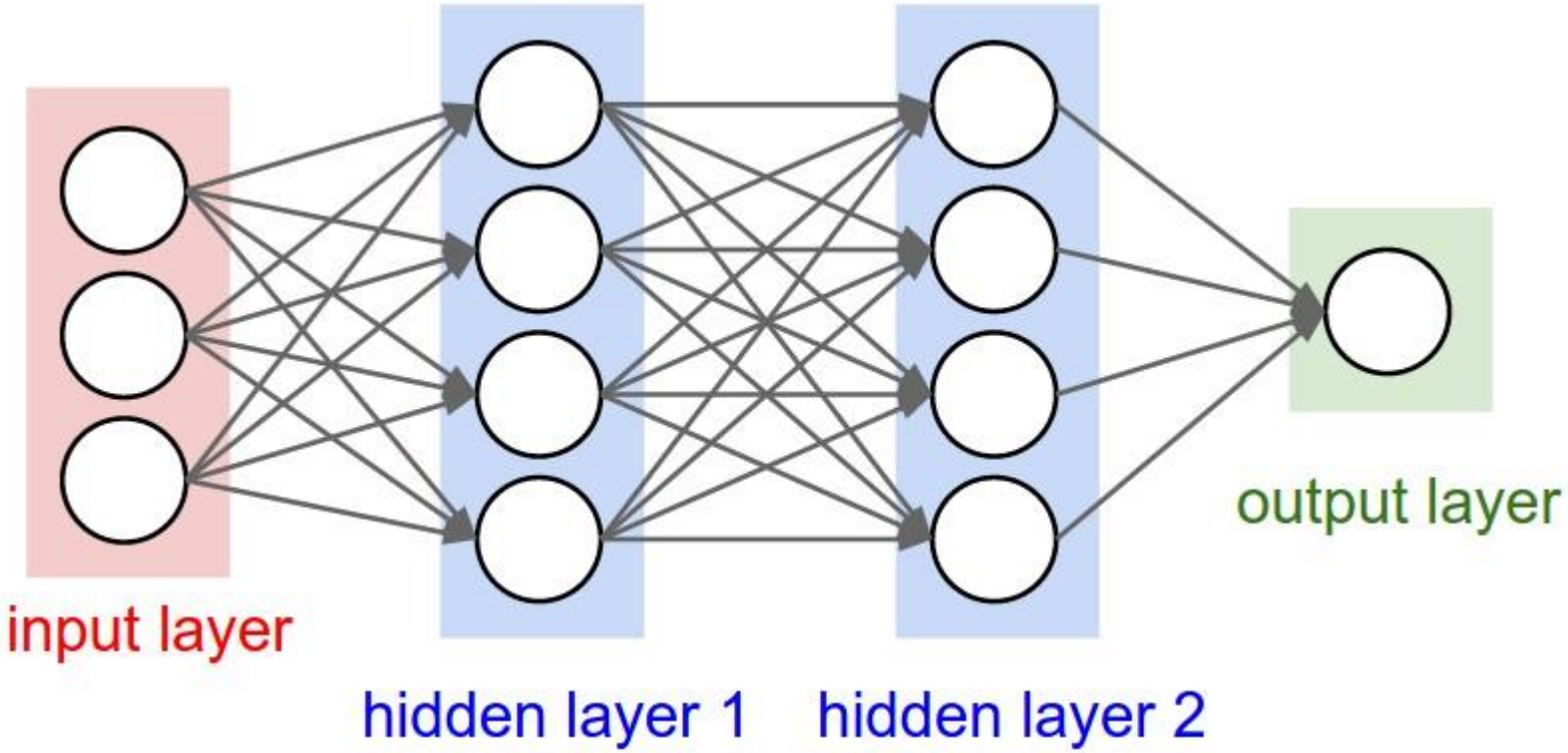
Solving XOR problem with MLP

Solving XOR problem

Solving XOR problem

Solving XOR problem

Solving XOR problem



https://beamandrew.github.io/deeplearning/2017/02/23/deep_learning_101_part2.html

Solving XOR problem

Is there any other W and b that solves XOR problem?

If then, how can we find it with training algorithm?

Universal Approximation Theorem

A feed–forward network with single hidden layer is sufficient to represent any function, but the required hidden unit might be infinitely large and may fail to learn.

Using deeper model can reduce the number of required units for representing desired functi on.

Backpropagation

Backpropagation with Chain Rule

Backpropagation with Chain Rule

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Backpropagation with Chain Rule

Topics to learn today

1. **Review from last lecture**
   - Problems of ML / Linear Regression
   - Linear Regression with Pytorch
2. **Binary/Multinomial Classification Problem**
   - with Logistic Regression
   - Multinomial Classification with Pytorch
3. **History of Deep Learning**
   - from simple perceptron to CNN
4. **Solving XOR Problem with MLP**
   - Feed forward / Backpropagation
   - Solving Regression and Classification Problem with MLP