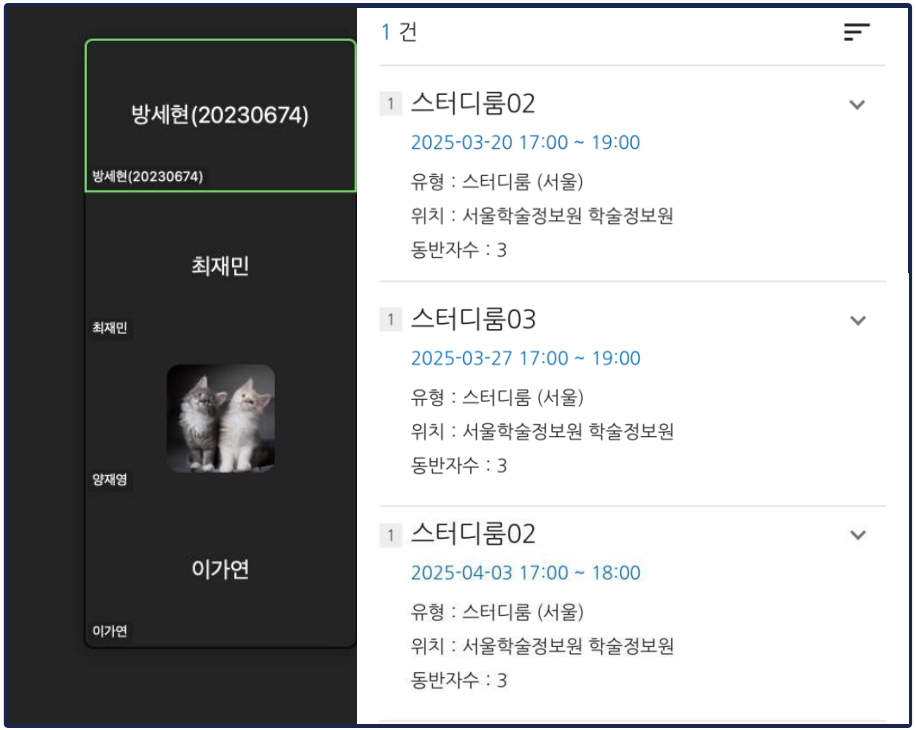
Stanford Univ. CS231n 스터디 2팀

2025.04.29

발표자 : 양재영

스터디원 소개 및 만남 인증



스터디원 1 : 방세현

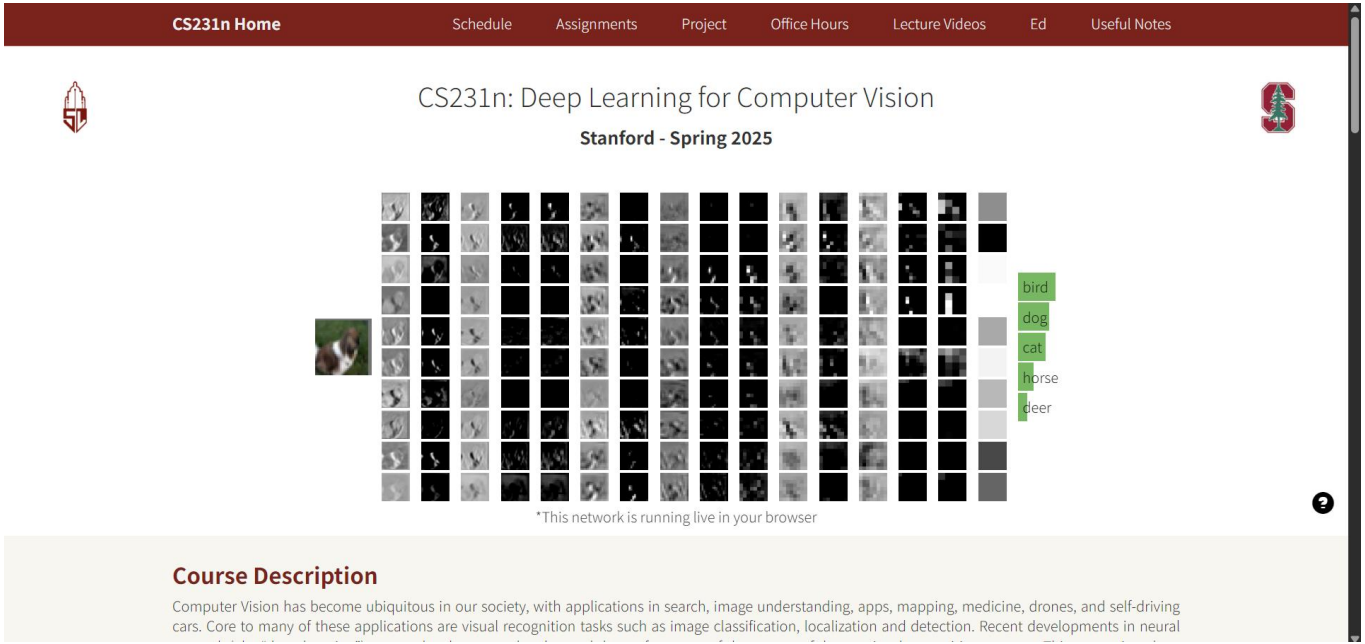
스터디원 2 : 이가연

스터디원 3 : 양재영

스터디원 4 : 최재민

목차

스터디 주제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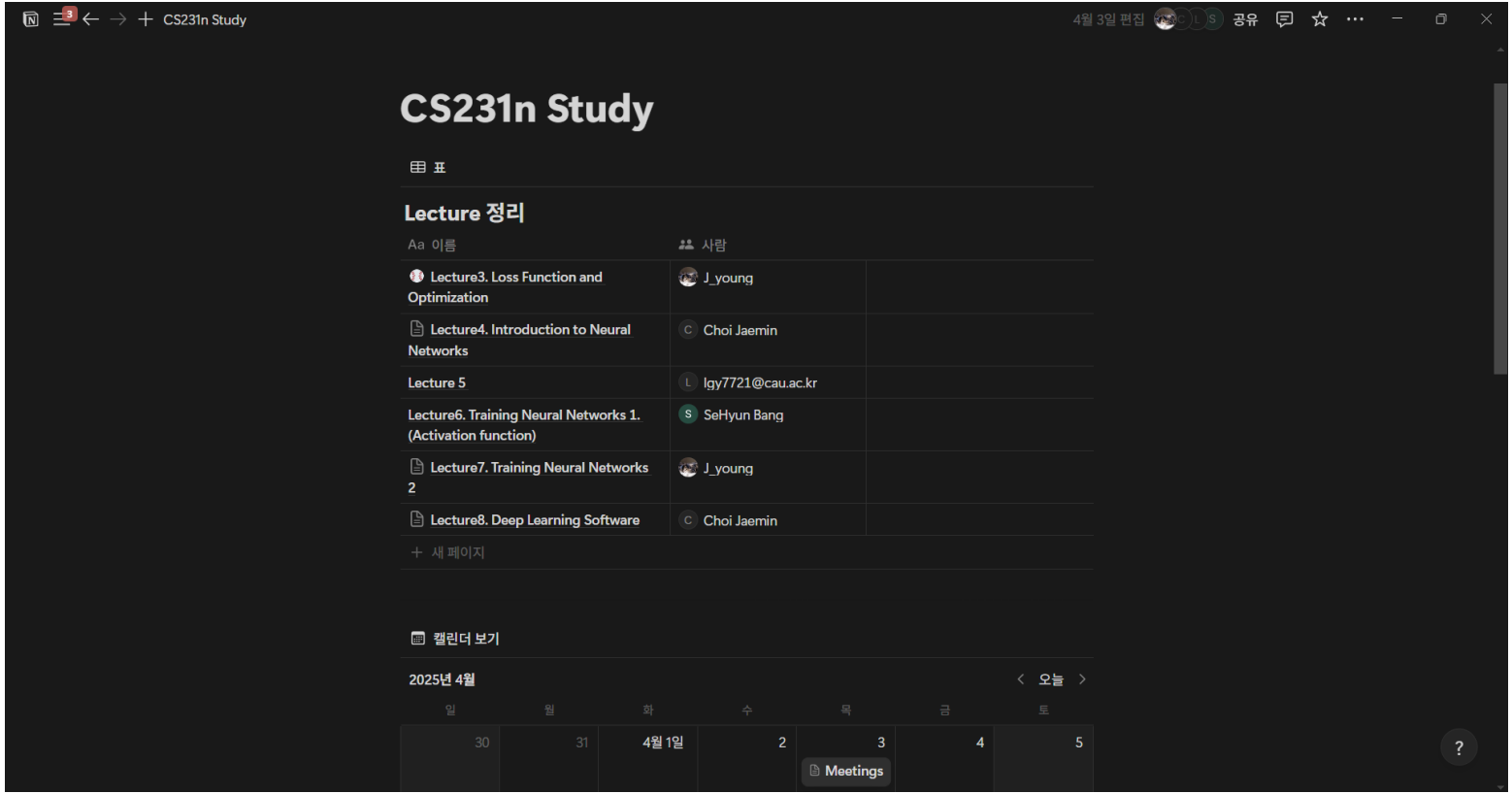
CS231n: Deep Learning for Computer Vision
Stanford - Spring 2025
bird
dog
cat
horse
deer
*This network is running live in your browser
Course Description
Computer Vision has become ubiquitous in our society, with applications in search, image understanding, apps, mapping, medicine, drones, and self-driving cars. Core to many of these applications are visual recognition tasks such as image classification, localization and detection. Recent developments in neural

스터디 진행 방식

- 대면 스터디
- 매주 유튜브에 업로드 된 2017년 강의 시청 후 발제
- 2025년 버전에 추가된 내용 또한 추가적으로 공부 후 공유

Date	Lecture
3/13	OT
3/20	Introduction(Lecture 1), Deep learning Basics(Lecture 2, 3)
3/27	Deep learning Basics(Lecture 4), Perceiving and Understanding the Visual World(Lecture 5, 6)
4/3	Perceiving and Understanding the Visual World(Lecture 7, 8, 9)
5/1	Perceiving and Understanding the Visual World(Lecture 10, 11), Generative and Interactive Visual Intelligence(Lecture 12)
5/8	Generative and Interactive Visual Intelligence(13, 14)
5/15	Generative and Interactive Visual Intelligence(15, 16)
5/22	Generative and Interactive Visual Intelligence(17, 18)

스터디 진행 현황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4월 3일 편집
공유
CS231n Study
표
Lecture 정리
Aa 이름
사람
Lecture3. Loss Function and Optimization
J_young
Lecture4. Introduction to Neural Networks
Choi Jaemin
Lecture 5
lgy7721@cau.ac.kr
Lecture6. Training Neural Networks 1. (Activation function)
SeHyun Bang
Lecture7. Training Neural Networks 2
J_young
Lecture8. Deep Learning Software
Choi Jaemin
새 페이지
캘린더 보기
2025년 4월
오늘
일
월
화
수
목
금
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30
31
4월 1일
2
3
Meetings
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5

스터디 진행 현황

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표

Lecture 정리

Aa 이름	사람
Lecture3. Loss Function and Optimization	J_young
Lecture4. Introduction to Neural Networks	Choi Jaemin
Lecture 5	lgy7721@cau.ac.kr
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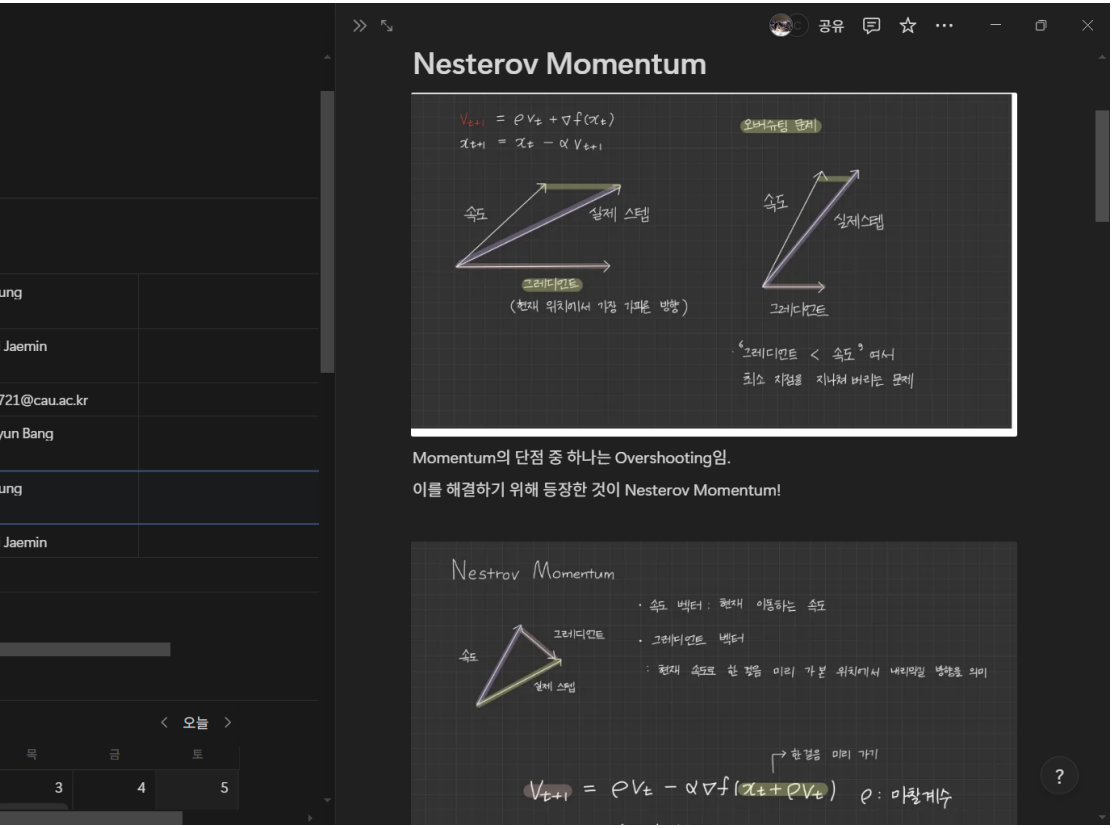
Lecture8. Deep Learning Software	Choi Jaemin

+ 새 페이지

캘린더 보기

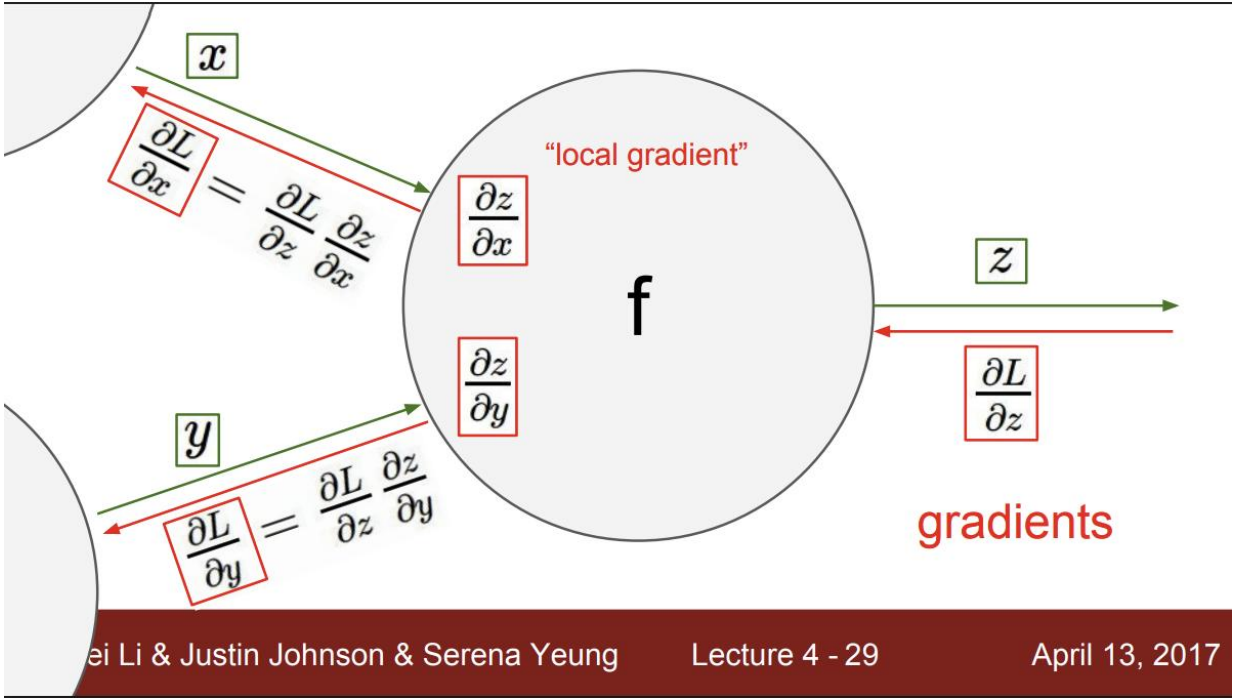
2025년 4월 〈 오늘 〉

일	월	화	수	목	금	토
30	31	4월 1일	2	3	4	5



스터디 내용 공유

Lecture_4. Introduction to Neural Networks



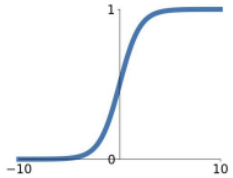
스터디 내용 공유

Lecture_4. Introduction to Neural Networks

Activation functions

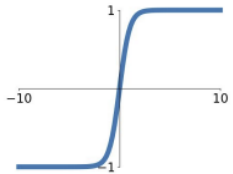
Sigmoid

$$\sigma(x) = \frac{1}{1+e^{-x}}$$



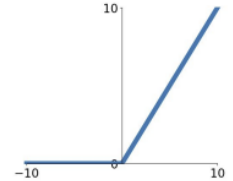
tanh

$$\tanh(x)$$



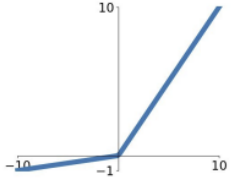
ReLU

$$\max(0, x)$$



Leaky ReLU

$$\max(0.1x, x)$$

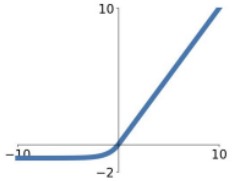


Maxout

$$\max(w_1^T x + b_1, w_2^T x + b_2)$$

ELU

$$\begin{cases} x & x \geq 0 \\ \alpha(e^x - 1) & x < 0 \end{cases}$$



스터디 내용 공유

Lecture_5. Convolutional Neural Networks

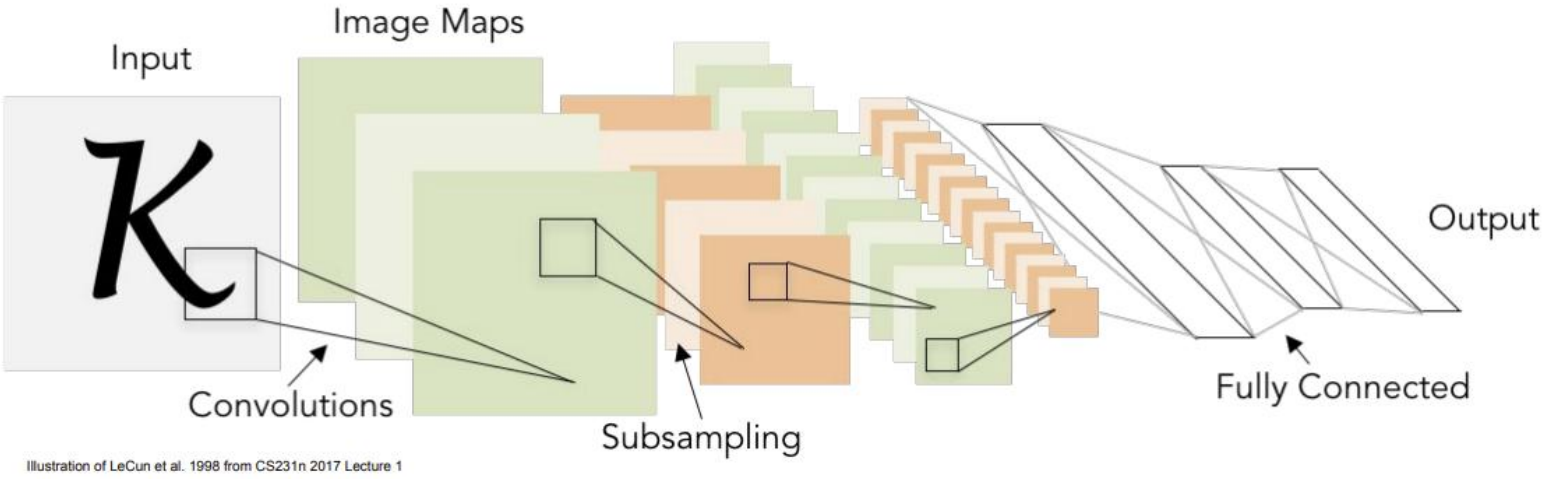


Illustration of LeCun et al. 1998 from CS231n 2017 Lecture 1

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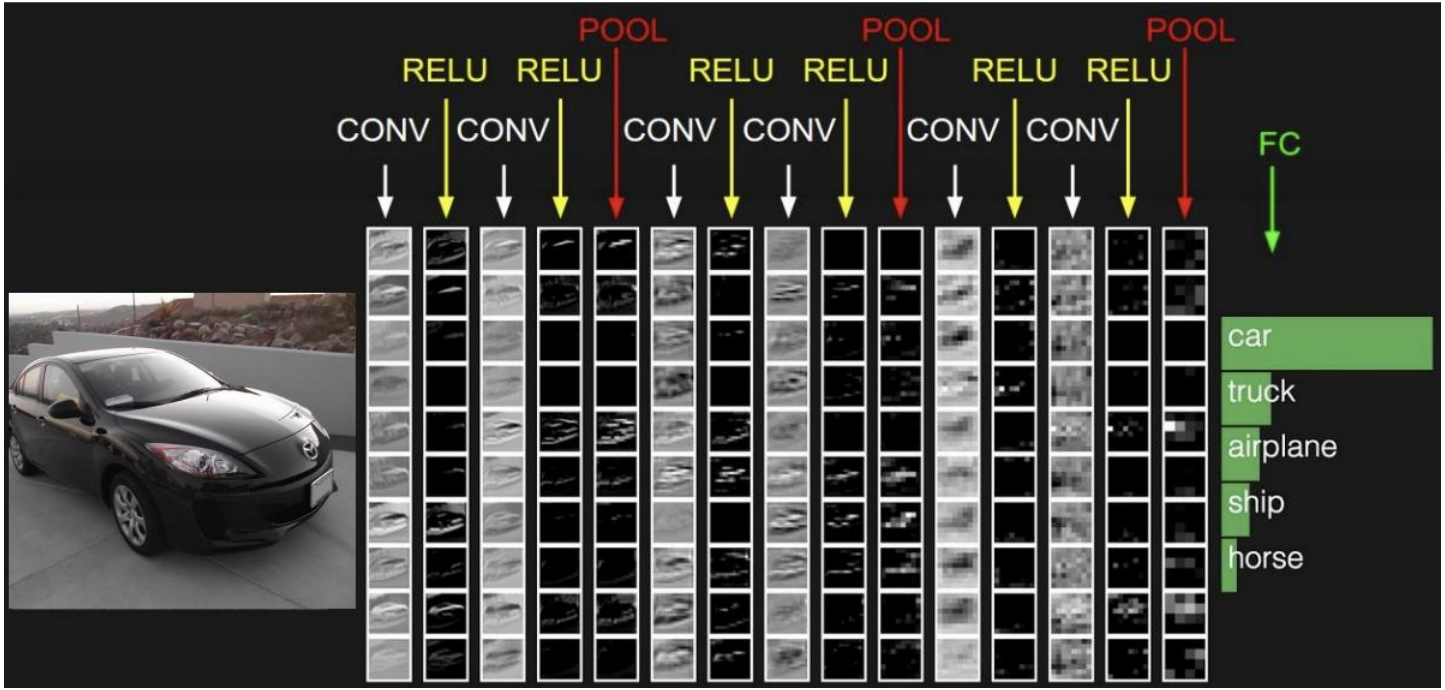
Lecture_5. Convolutional Neural Networks



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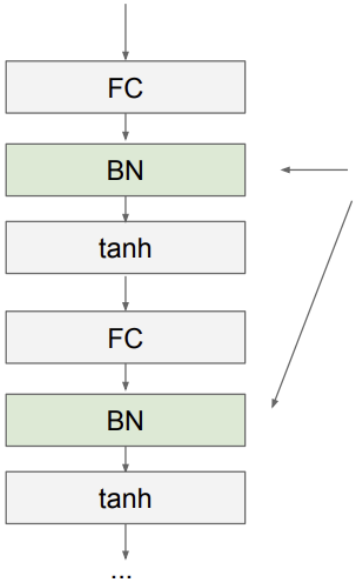
Lecture_6-7. Training Neural Networks

Batch Normalization

[Ioffe and Szegedy, 2015]

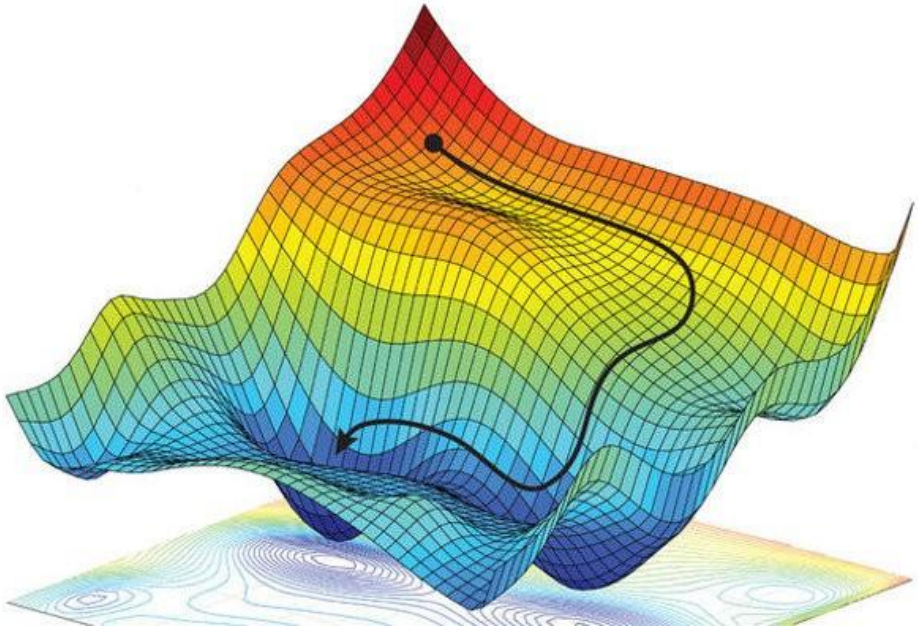


Usually inserted after Fully Connected or Convolutional layers, and before nonlinearity.

$$\widehat{x}^{(k)} = \frac{x^{(k)} - \mathrm{E}[x^{(k)}]}{\sqrt{\mathrm{Var}[x^{(k)}]}}$$

스터디 내용 공유

Lecture_6-7. Training Neural Networks



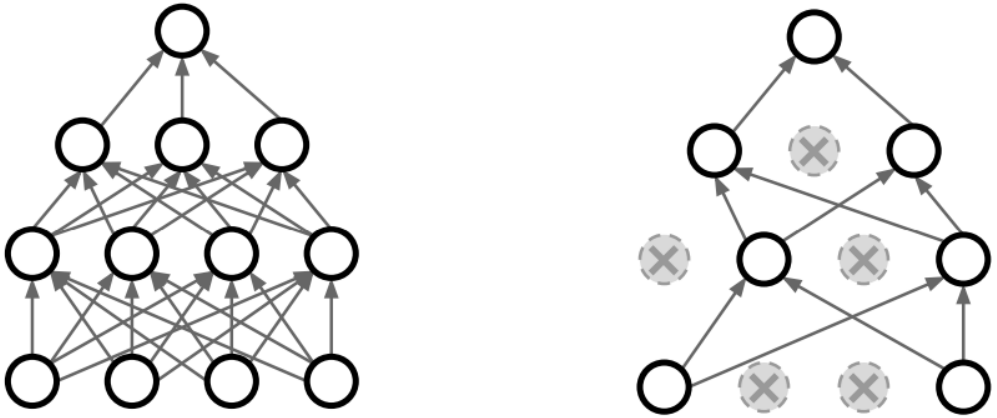
Gradient Descent
SGD
Nesterov Momentum
RMS Prop
ADAM
.
.
.

스터디 내용 공유

Lecture_6-7. Training Neural Networks

Regularization: Dropout

In each forward pass, randomly set some neurons to zero
Probability of dropping is a hyperparameter; 0.5 is common



Srivastava et al, “Dropout: A simple way to prevent neural networks from overfitting”, JMLR 2014

감사합니다