

Deep Learning

- 딥러닝 이해와 응용 (Raspberry Pi에서 딥러닝) -

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Ando Ki, Ph.D.

adki@future-ds.com

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-- Contact information --
Ando Ki, Ph.D.

adki@future-ds.com
www.Futue-DS.com

강좌의 개요

이 강좌는 인공지능과 딥러닝에 대한 기초적인 내용부터 응용까지를 다루고,

딥러닝을 이해하고 응용을 개발하는데 필요한 다양한 이론적 배경과 개발 환경에 대해 상세하게 설명하며,

딥러닝 응용을 프로그램하여 실습해 보는 과정을 통해 직접 경험해 보도록 한다.

소규모 컴퓨팅 환경에서 딥러닝을 실습해 봄으로써 딥러닝 활용 기회를 확장해 볼 수 있도록 한다.

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Target audience and prerequisites

■ Target audience

- ▶ This lecture is prepared for engineers and students who are interested in developing deep-learning application.

■ Prerequisites

- ▶ Experience with industry standard Operating Systems and text editor such as Windows/Linux and Vi/Vim.
- ▶ Experience with industry standard C++ compilation tool-chain; GNU GCC
- ▶ Basic knowledge of the C/C++ language

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Goals and objectives

- Goals

▶

 Understanding of artificial intelligence, machine learning, and deep learning.

▶

 Acquiring the working knowledge of deep learning model.

▶

 Practicing development and running deep learning model.
- Objectives

▶

 Understanding of deep neural network

▶

 Understanding of well known DNN for image classification (LeNet) and detection (Yolo)

▶

 Understanding of Python

▶

 Understanding of Darknet: LeNet, YOLO

▶

 Understanding of Caffe V1: LeNet, YOLO

Lecture schedule

	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00
1 st	0, 1	2, 3	4		5, 6	7	8, 9	10, 11	12, 13

- 0: Lecture overview
- 1: Introduction to AI, ML, and DL
- 2: Introduction to Python
- 3: Simple NN
- 4: CNN
- 5: LeNet introduction
- 6: YOLO introduction
- 7: Darknet introduction: LeNet and YOLO
- 8: Darknet with NNPACK
- 9: Darknet training
- 10: Caffe V1 introduction
- 11: Caffe installation
- 12: Caffe: LeNet and YOLO
- 13: Summary


Preparation

- 1. Connect all necessary interfaces of Raspberry Pi
 - ▶ uSD Card
 - ▶ Keyboard and mouse if required
 - ▶ Ethernet if required (if not, use WiFi instead)
- 2. Connect power



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Preparation

- 1. Log in
 - ▶ User ID: pi
 - ▶ Password: raspberry
- 2. Make 'work' directory at the home
 - ▶ `$ mkdir work`
 - ▶ `$ cd work`
- 3. Check internet by invoking WebBrowser (Chromium) 
- 4. Download git repository
 - ▶ `$ git clone http://github.com/adki/DeepLearningOnRaspberryPi-20200630.git`
- 5. Down to the directory
 - ▶ `$ cd DeepLearningOnRaspberryPi-20200630`

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(주)퓨처디자인시스템

34051 대전광역시 유성구 문지로 193, KAIST 문지캠퍼스, F723호
(042) 864-0211~0212 / contact@future-ds.com / www.future-ds.com

Future Design Systems, Inc.

Faculty Wing F723, KAIST Munji Campus, 193 Munji-ro, Yuseong-gu, Daejeon 34051, Korea
+82-042-864-0211~0212 / contact@future-ds.com / www.future-ds.com



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