

COURSE DETAIL

BASICS OF DEEP LEARNING

Country

Korea, South

Host Institution

Seoul National University

Program(s)

Seoul National University

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Computer Science

UCEAP Course Number

140

UCEAP Course Suffix**UCEAP Official Title**

BASICS OF DEEP LEARNING

UCEAP Transcript Title

BASICS OF DEEP LRNG

UCEAP Quarter Units

4.50

UCEAP Semester Units

3.00

Course Description

This course explores the underlying principles of several cutting-edge topics in machine learning and deep learning, including adversarial attacks, deep metric learning, generative models, information theory, and reinforcement learning.

In addition, the course examines the end-to-end construction of modern large language models and practices core concepts by implementing them. Students engage in coding assignments and team projects using GPU-enabled computer servers to test original ideas.

Topics include concepts and history of deep learning, backpropagation techniques such as stochastic gradient descent, initialization techniques, regularization techniques such as drop out, convolutional neural networks (CNN), CNN architectures, visualization of CNN, recurrent neural networks (RNN), RNN applications, and other applications including reinforced learning.

To emphasize practical skills to implement deep learning algorithms, programming-related lectures and lab sessions are included. The most important/popular language, Python, will be covered and a Python math library called Numpy is also taught with lab sessions. Advanced deep learning algorithms are implemented in Tensorflow library, which is introduced as well including relevant lab sessions

Language(s) of Instruction

English

Host Institution Course Number

M2177.004300

Host Institution Course Title

BASICS OF DEEP LEARNING

Host Institution Campus

Host Institution Faculty
Host Institution Degree
Host Institution Department

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