

Orientation:

Introduction to Deep Learning

(WA6614, Fall 2024)

Sudong Lee

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Instructor



Sudong Lee

Bio

2020.09.~

Assistant Professor, School of Industrial Engineering,
University of Ulsan

2019.12.~ 2020.08.

Senior Researcher, Intelligent Computing Lab.,
Korea Atomic Energy Research Institute

2018.03.~2019.11.

Senior Manager, Data Science, *SK Hynix*

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Course Objective

“We learn the principles, research trends, and use cases of deep learning.”

Theory

- Background knowledge and research trends for deep learning
- Understanding deep learning fundamentals and theories of deep learning

Programming

- Python programming skills for data science
- Hands-on implementation of deep learning using Python

Projects

- Solving real-world problems using deep learning
- Scientific reporting skills

Prerequisites

- **Python programming**

- Data types and structures, loops and conditionals, functions and classes
- Data processing using Numpy, Pandas, Matplotlib, etc.

- **Linear algebra and calculus**

- Linear algebra: vectors and matrices, matrix operations
- Calculus: differentiation, integration
- Statistics: probability distributions, statistical inference

- **Machine learning**

- Basic concepts of machine learning

Course Description

- **Course name (code):** 딥러닝입문, Introduction to Deep Learning (WA6614)
- **Credit:** 3 (3-0)
- **Schedule:** 14:00-17:00 on Tuesday (23-207)
- **Contact:** Sudong Lee (Tel. (052)259-2174, sudonglee@ulsan.ac.kr)
- **Office hours:** Thu. 14:00-15:00, Fri. 11:00-12:00 (by appointment)
- **Textbook and References:** Lecture notes and reading materials are given every week.

Weekly Plan

Week	LC	Week	LC
1	Orientation	9	Recurrent Neural Networks
2	AI, Machine Learning, and Deep Learning	10	AutoEncoder
3	Introduction to Artificial Neural Networks	11	Transformer
4	Learning Process of Artificial Neural Networks	12	Generative Deep Learning (1)
5	Deep Feedforward Networks	13	Generative Deep Learning (2)
6	Optimization for Training Deep Neural Networks	14	Kolmogorov-Arnold Network
7	Convolutional Neural Networks	15	Make-up Classes
8	Midterm Exam	16	Final Exam

Evaluation Criteria

- Attendance (10%)
- Midterm/Final Exam (30% each)
- Term Project (30%)

Thank you! 😊