

Machine Learning

서울대학교 컴퓨터공학부 이영기



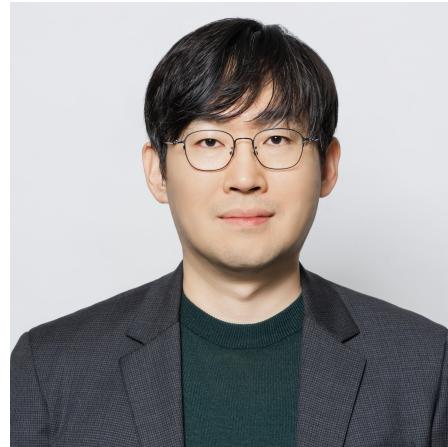
Human-Centered
Computer Systems Lab



SEOUL NATIONAL UNIVERSITY

Quick Introduction

- Name: Youngki Lee
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- Research Homepage:
 - <https://youngkilee.blogspot.com/>



Quick Introduction

Experiences

- 2020-Now: Associate Professor, Department of CSE, Seoul National University
- 2018-2020: Assistant Professor, Department of CSE, Seoul National University
- 2013-2018: Assistant Professor, School of Information Systems, Singapore Management University

Research Lab

- Human-centered computer systems lab (<https://hcs.snu.ac.kr/people/>)
- 22 PhD/Masters students and 2 undergraduate research interns

Research Interests

- Mobile and ubiquitous computing
- On-device machine learning systems
- AR/VR/XR Systems
- Human computer interaction

Research Activities

- 30↑ top conferences papers (ACM MobiSys, ACM MobiCom, ACM UbiComp, ACM SenSys, ACM CHI)
- Program Co-Chair and General Co-Chair, ACM UbiComp 2018, ACM MobiSys 2026
- Steering committee, ACM UbiComp, 2019-Now
- Technical Program Committee (ACM MobiSys, ACM MobiCom, ACM SenSys, ACM UbiComp, IEEE INFOCOM)

Agenda for Today

- Introduction to the class
 - Introduction to the machine learning
 - Introduction to the statistical learning
- ✓ Chapter 2 of our textbook
- Lab for the chapter 2

Course Objectives

- Upon completion of the course, you should be able to:
 - ✓ Understand key concepts and technical underpinnings of various machine learning techniques.
 - ✓ Apply machine learning models to exemplary real-world problems.



Class Timings

	1/12	1/13	1/14	1/15	1/16
오전	강의 (교수): 4시간				
오후	실습 (조교): 4시간				
	1/19	1/20	1/22	1/23	1/24
오전	강의 (교수): 4시간				
오후	실습 (조교): 4시간				

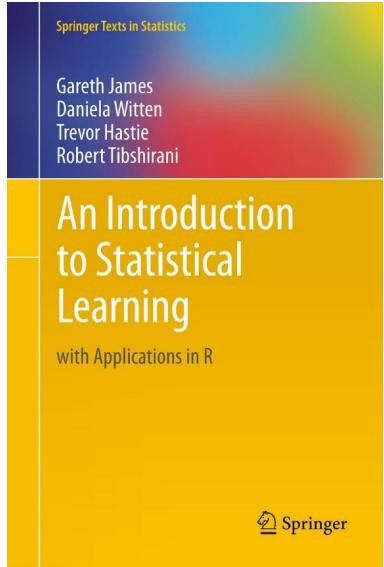
Pre-Requisites

- Took an undergraduate “introduction to statistics” and “introduction to linear algebra” courses.
- Familiar with python.

Textbook

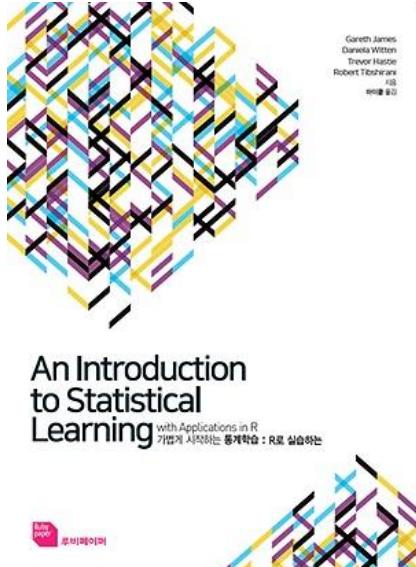
- Week 1

✓ 가볍게 시작하는 통계학습



- Week 2

✓ Lecture Slides



Philosophy of the Textbook

- It is important to understand the ideas behind the various techniques, in order to know how and when to use them.
- One has to understand the simpler methods first, in order to grasp the more sophisticated ones.
- It is important to accurately assess the performance of a method, to know how well or how badly it is working [simpler methods often perform as well as fancier ones!]
- This is an exciting research area, having important applications in science, industry and finance.
- Statistical learning is a fundamental ingredient in the training of a modern data scientist.

Labs

- GitLab

- ✓ <https://gitlab.com/machine-learning-course1/ml-practice-lg-2026-winter#>
- ✓ Learn statistics in Python
- ✓ Environment: Colab

Tentative Lesson Plan

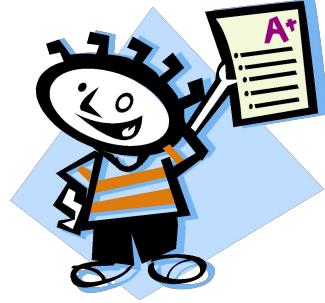
Day	Lecture Topic	Evaluation Milestones
1 (1/12)	Class Intro & Intro to Statistical Learning	
2 (1/13)	Linear Regression	
3 (1/14)	Classification & Cross Validation	Project 1 Release
4 (1/15)	Variable Selection	
5 (1/16)	Non-Linearity and Tree-based Methods	
6 (1/19)	Support Vector Machines and Unsupervised Learning	Project 1 Due (tentative) Project 2 Release
7 (1/20)	Automatic Machine Learning, Model Compression Techniques	Final Exam
8 (1/26)		Project 2 Due (tentative)

Teaching Assistants

- Jinmyeong Kim (김진명)
- Wootack Kim (김우탁)
- Hyunsoo Kim (김현수)
- Dongho Han (한동호)
- How to contact TAs?
 - ✓ Email to ta_ml@hcs.snu.ac.kr.



Assessment



- Projects (40%)
 - Project 1 (10%)
 - Project 2 (30%)
- Final Exam (60%)
 - Closed Book, All Materials
- Useful link
 - Answers to textbook exercises:
 - <http://blog.princehonest.com/stat-learning/>

Most Importantly ...

- Let's work hard and have fun!

