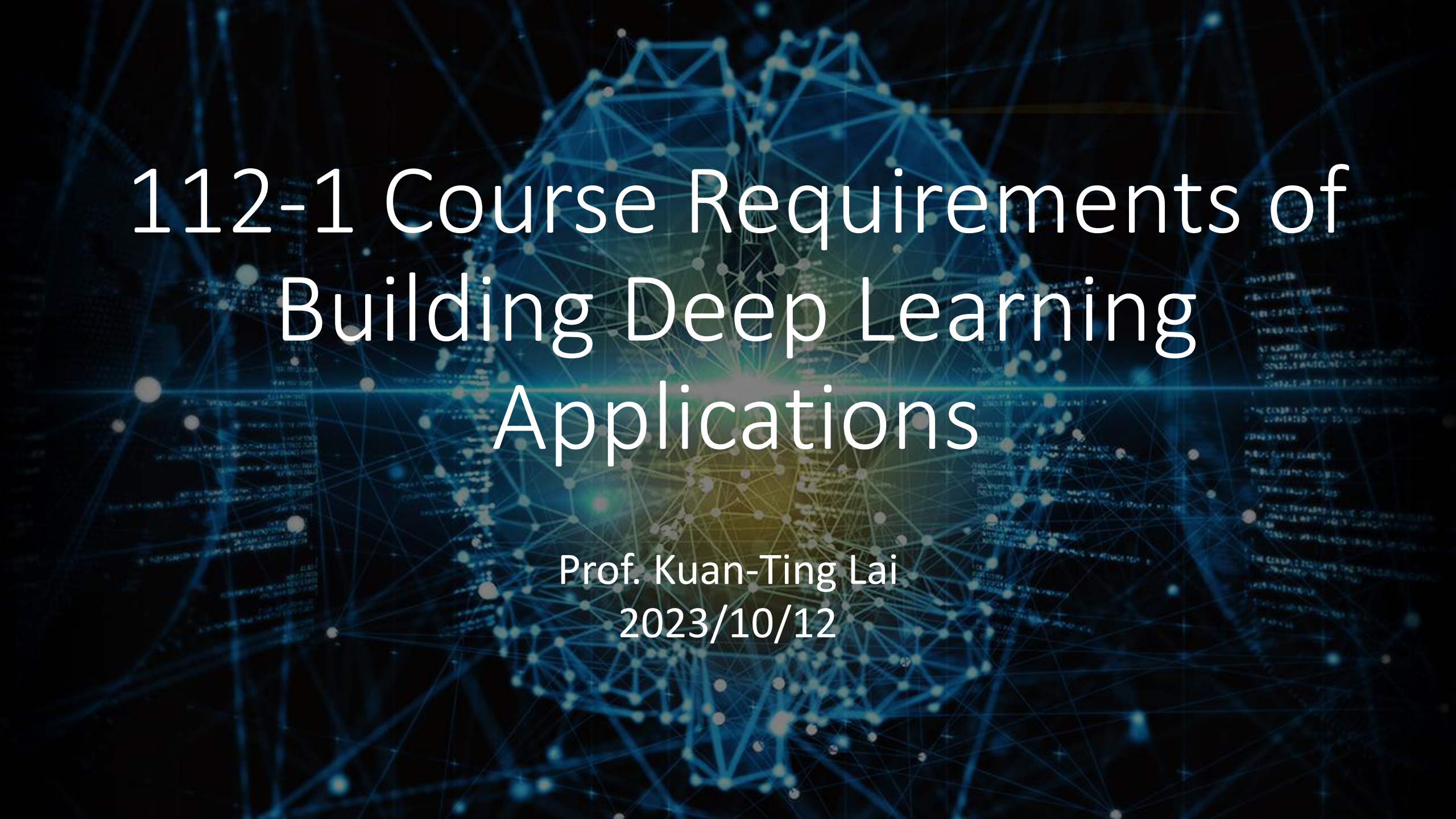


112-1 Course Requirements of Building Deep Learning Applications

Prof. Kuan-Ting Lai

2023/10/12

Web (www.aiotlab.org/teaching/dl_app.html)

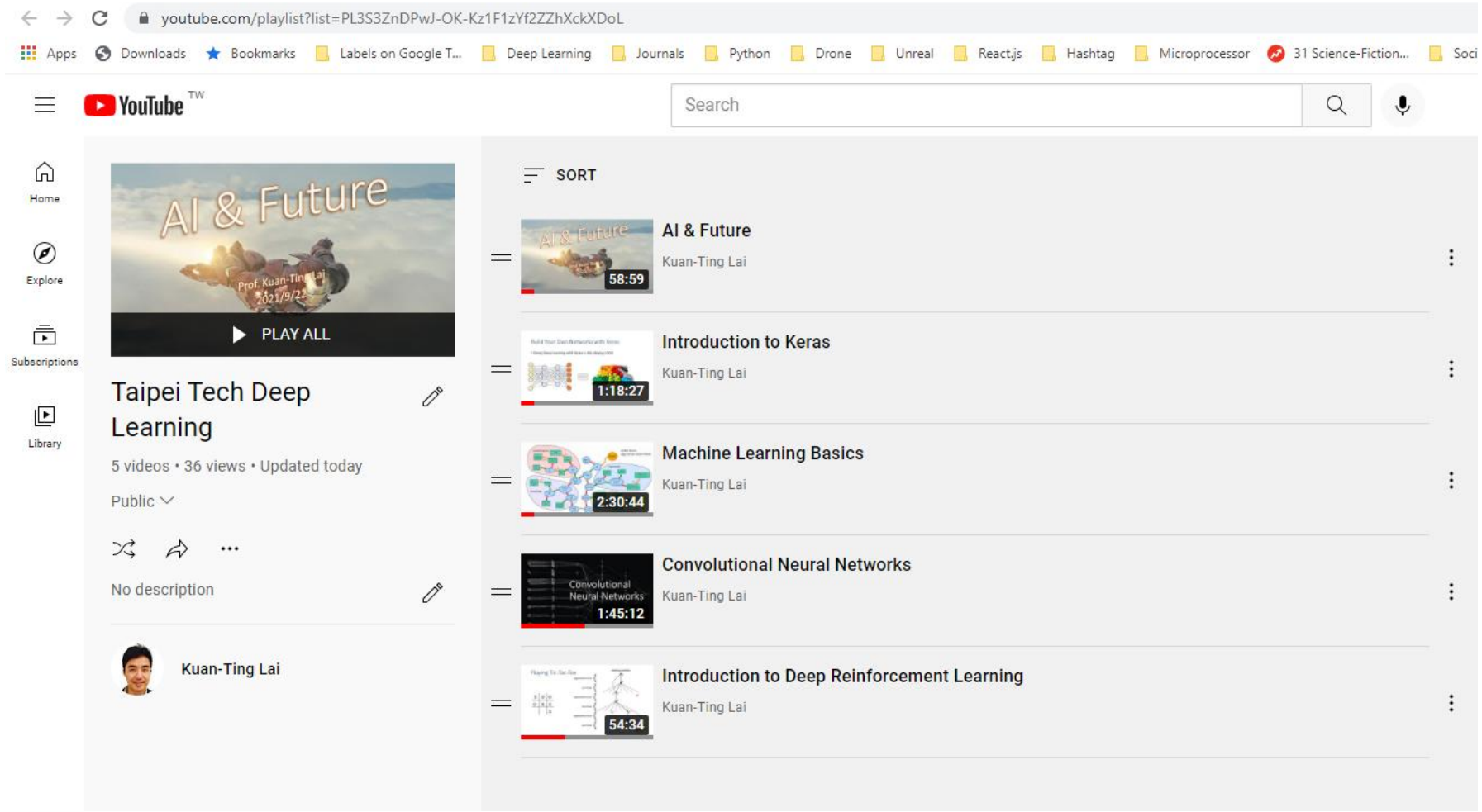
BUILDING DEEP LEARNING APPLICATIONS

NTUT Deep Learning FB Group YouTube Playlist

Week	Topic	Learning Objectives	Slides	Code	Video
	Text Book	François Chollet, Deep Learning with Python, 2nd Edition, Manning, 2021		GitHub	
0	Past, Present, and Future of AI	• Free your imagination to unleash your potential!			
1	Introduction to Deep Learning	• What is the Machine Learning? • Neural Networks, Gradient Descent and Backpropagation • State-of-the-arts of deep learning	pdf		
2	Applied Math	• Linear Algebra • Probability • Calculus • Optimization	pdf		
3	Introduction to Keras	• Write Keras code on Google Colab • Create a simple Dense Neural Networks • Use DNN to solve classification and regression problems • Batch, Epoch and Learning rate	pdf	IMDB_review financial_news house_pricing	

YouTube Playlist

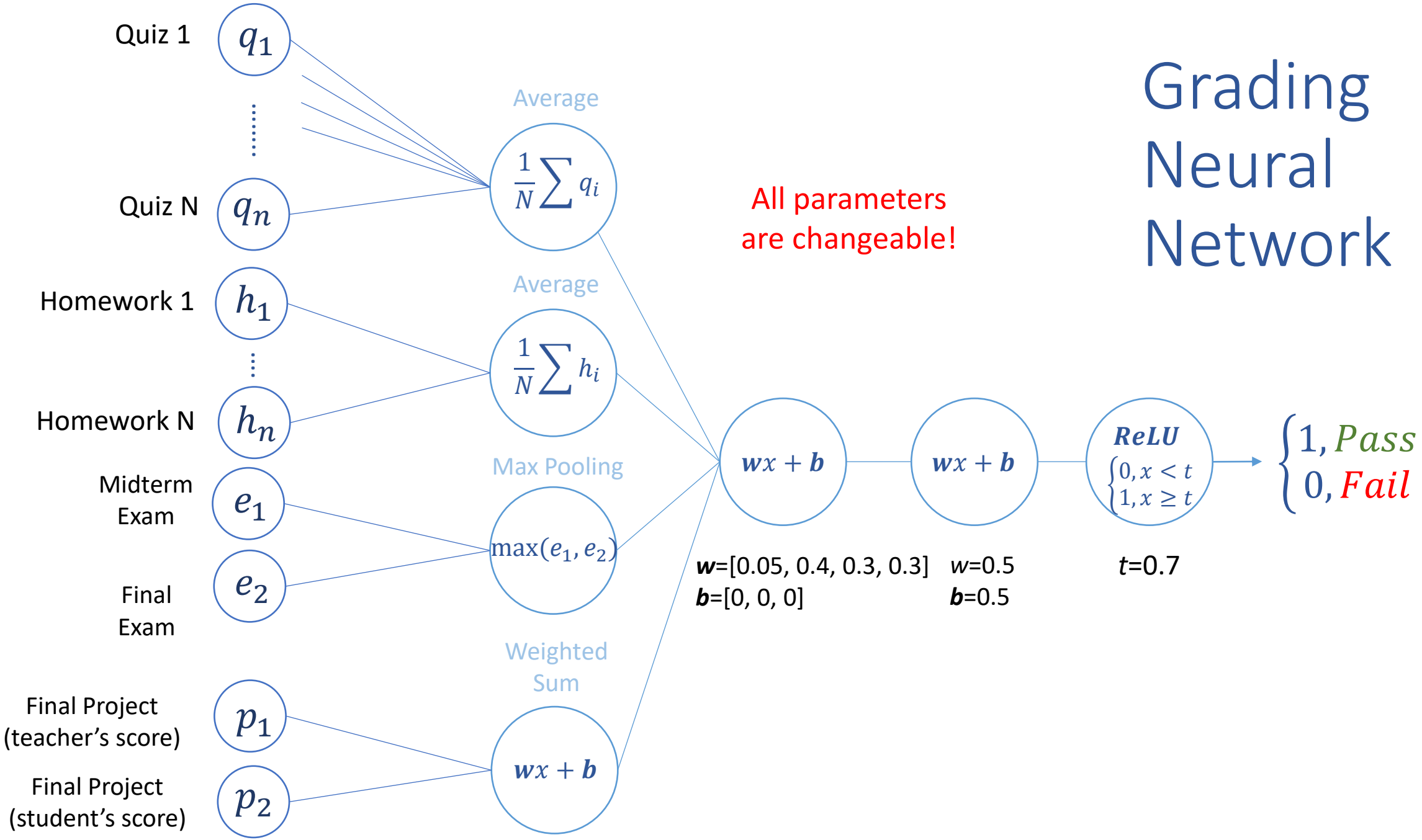
- https://www.youtube.com/playlist?list=PL3S3ZnDPwJ-OK-Kz1F1zYf2ZZhXckXDoL



Course Requirements (under rolling correction)

- Kaggle-style homework (45%)
  - Extended MNIST
  - Taiwanese Food 101
  - Data Preprocessing
  - Traffic Object Detection
  - Playing Tetris
- Exam (20%)
  - Midterm (25%)
- Final Project (20%)
  - Team members (1 ~ 4)
  - YouTube demo video
- Quizzes (10%)
- Attendance & Bonus (5%)

Grading Neural Network

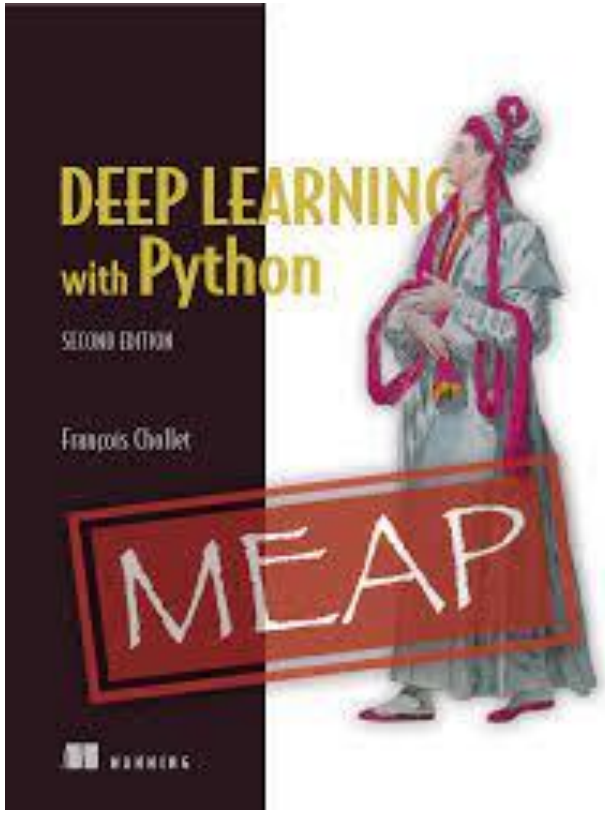


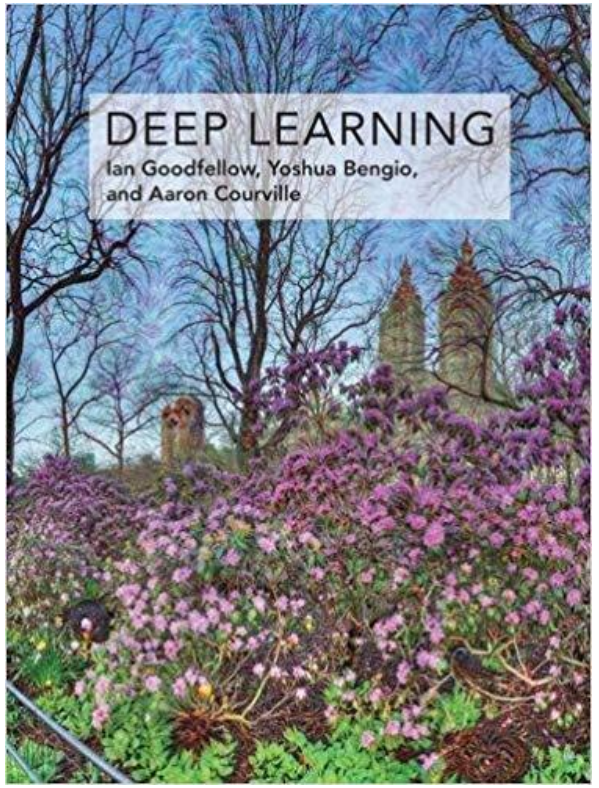
Grading Policy of Homework

Kaggle Ranking	Grade Description	Grade
Top 5%	Excellent	A+
5% ~ 20%		A
20 ~ 50%		A-
Others	Very Good	B+
< Random Guess		C
No submission		F

Textbooks & References

- Francois Chollet, “Deep Learning with Python, 2nd Edition” Manning, 2021
- Ian Goodfellow, Yoshua Bengio, and Aaron Courville, “Deep Learning,” MIT Press, 2017
- Latest publications on Nature, CVPR, NIPS, ICML, AAAI, ICLR



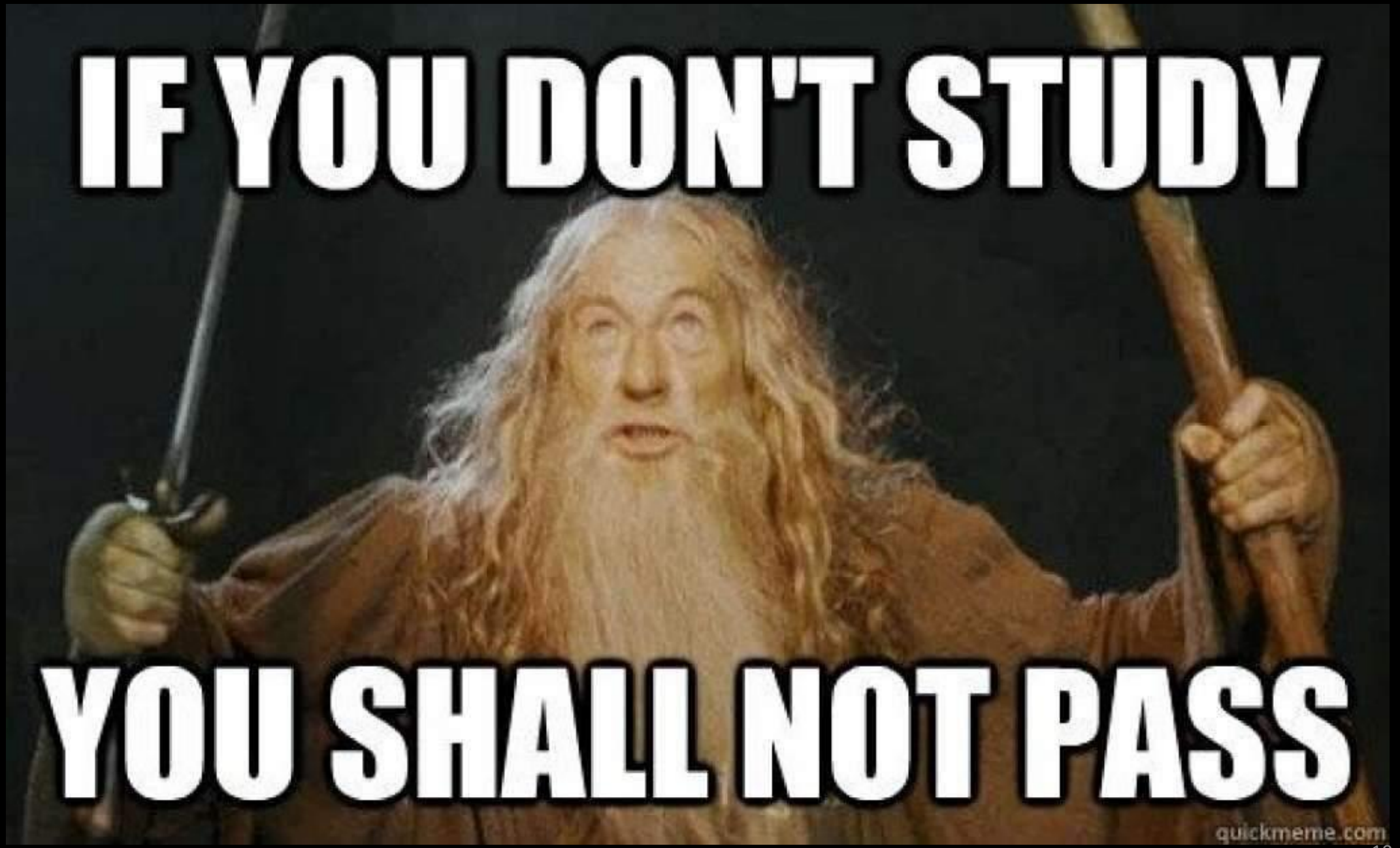


Schedule

Date	Syllabus
9/12	Past, Present, and Future of AI
9/19	Introduction to Deep Learning TensorFlow & Keras
HW1	Extended MNIST (Due 10/10)
9/26	Applied Math Machine Learning Basics
10/3	Convolutional Neural Networks (CNN) (Francois (2017), Chapter 5)
HW2	Taiwanese Food 101 (Due 10/24)
10/10	Holiday
10/17	Calculus & Optimization
10/24	Object Detection
10/31	Network Pruning and Quantization
10/7	Midterm

Schedule (cont.)

Date	
11/14	Natural Language Processing (NLP) and word Embedding
HW3	TBD (Due 5/9)
11/21	RNN & LSTM
11/28	Attention & Transformer
HW4	Deep Action Recognition (Due 12/6)
12/5	Generative Adversarial Networks (Francois (2017), Chapter 8)
12/12	Deep Reinforcement Learning (DRL)
12/19	Deep Learning on Graphs
12/26	Final Project Demo (YouTube Video, 10mins)
1/2	Final Project Demo (YouTube Video, 10mins)


IF YOU DON'T STUDY
YOU SHALL NOT PASS
quickmeme.com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Facebook Group (NTUT Deep Learning)