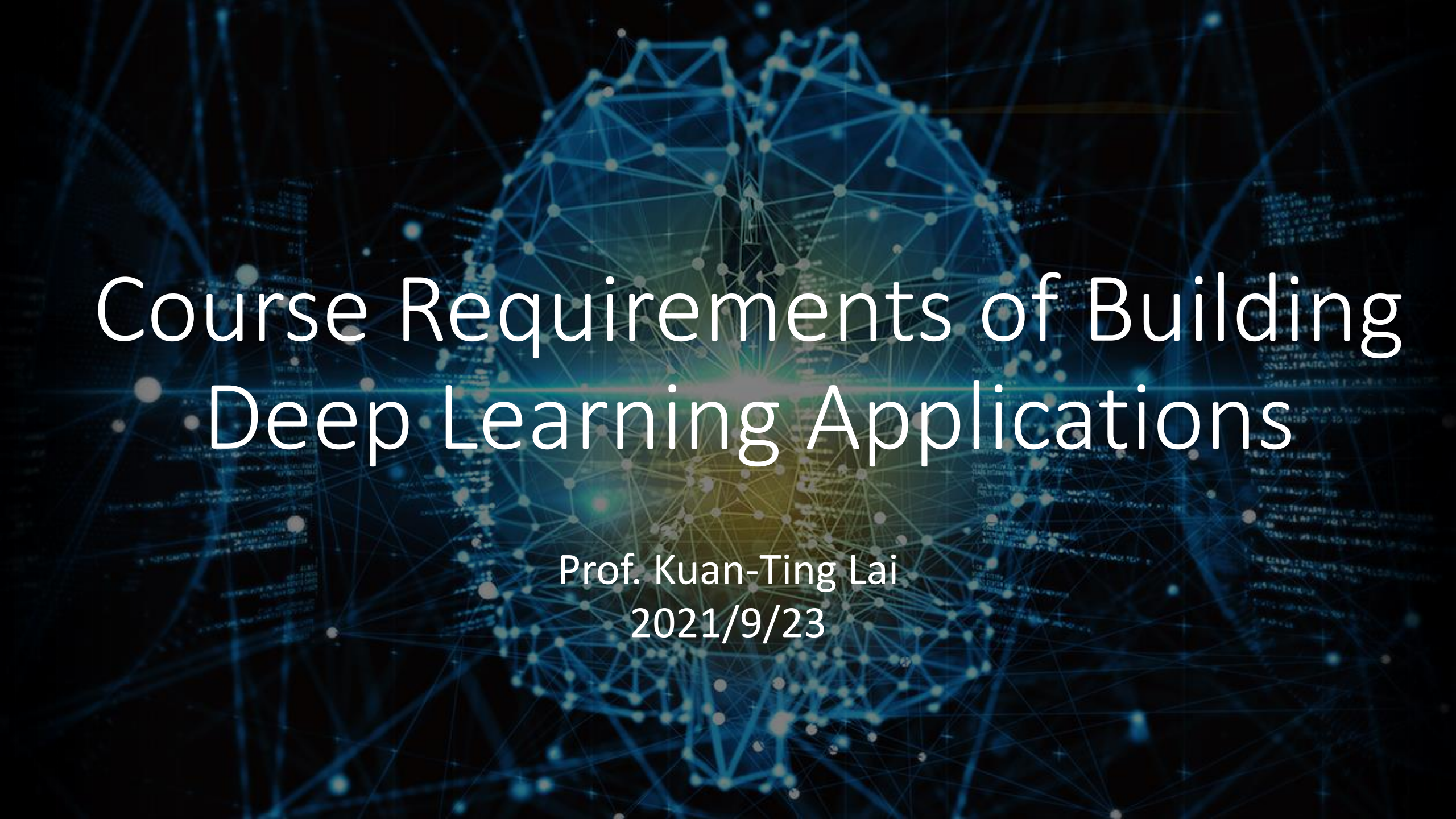


Course Requirements of Building Deep Learning Applications

Prof. Kuan-Ting Lai

2021/9/23

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

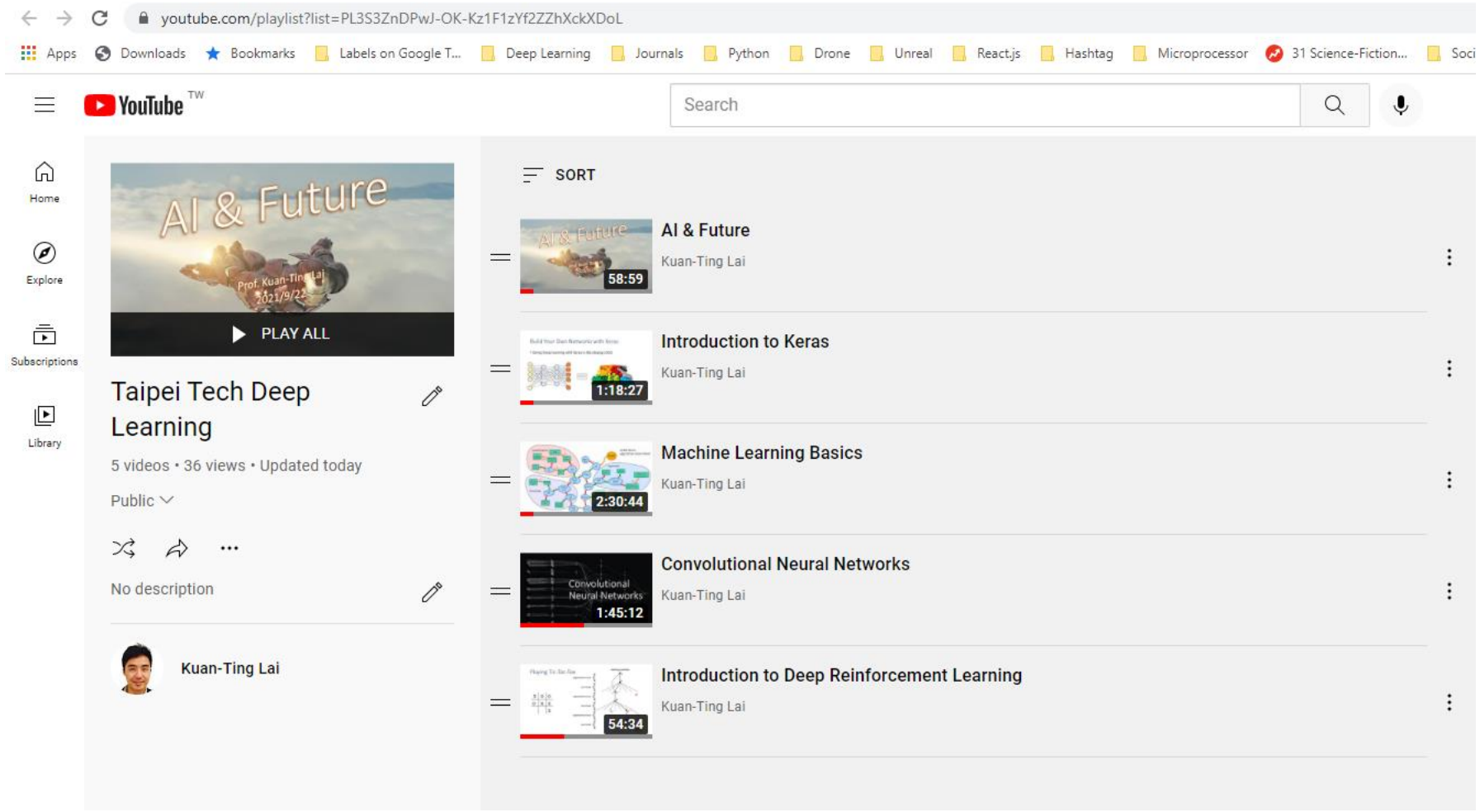
BUILDING DEEP LEARNING APPLICATIONS

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)

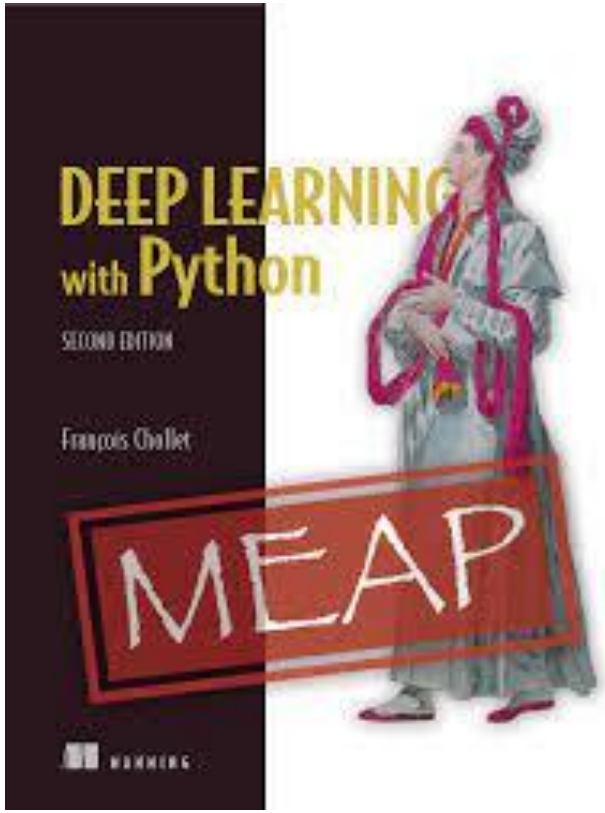
- Kaggle-style homework (40%)
  - Fashion MNIST
  - Taiwanese Food 101
  - Stock Price Prediction
  - Drone Action Recognition
- Exam (30%)
  - Midterm (15%) and Final exam (15%)
- Final Project (30%)
  - Team members (1 ~ 4)
  - YouTube demo video
- Attendance (5%)
  - Quiz

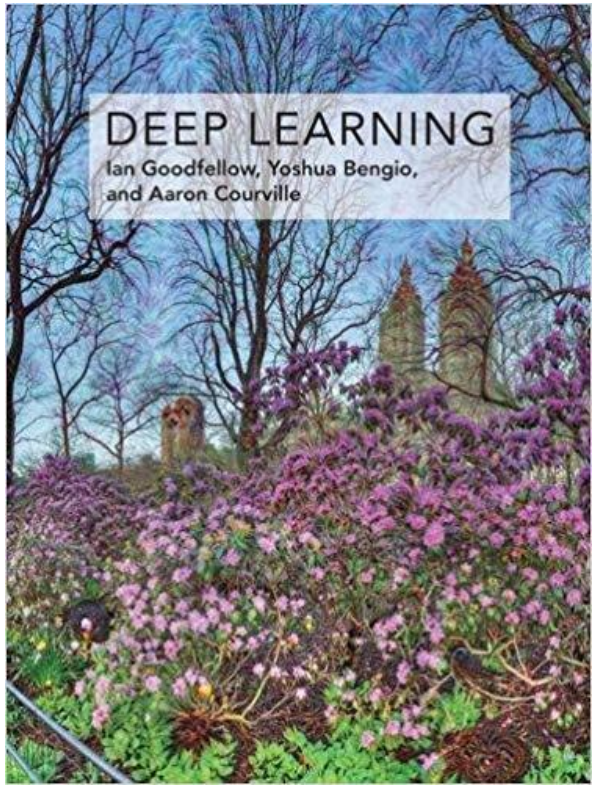
Grading Policy of Homework

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





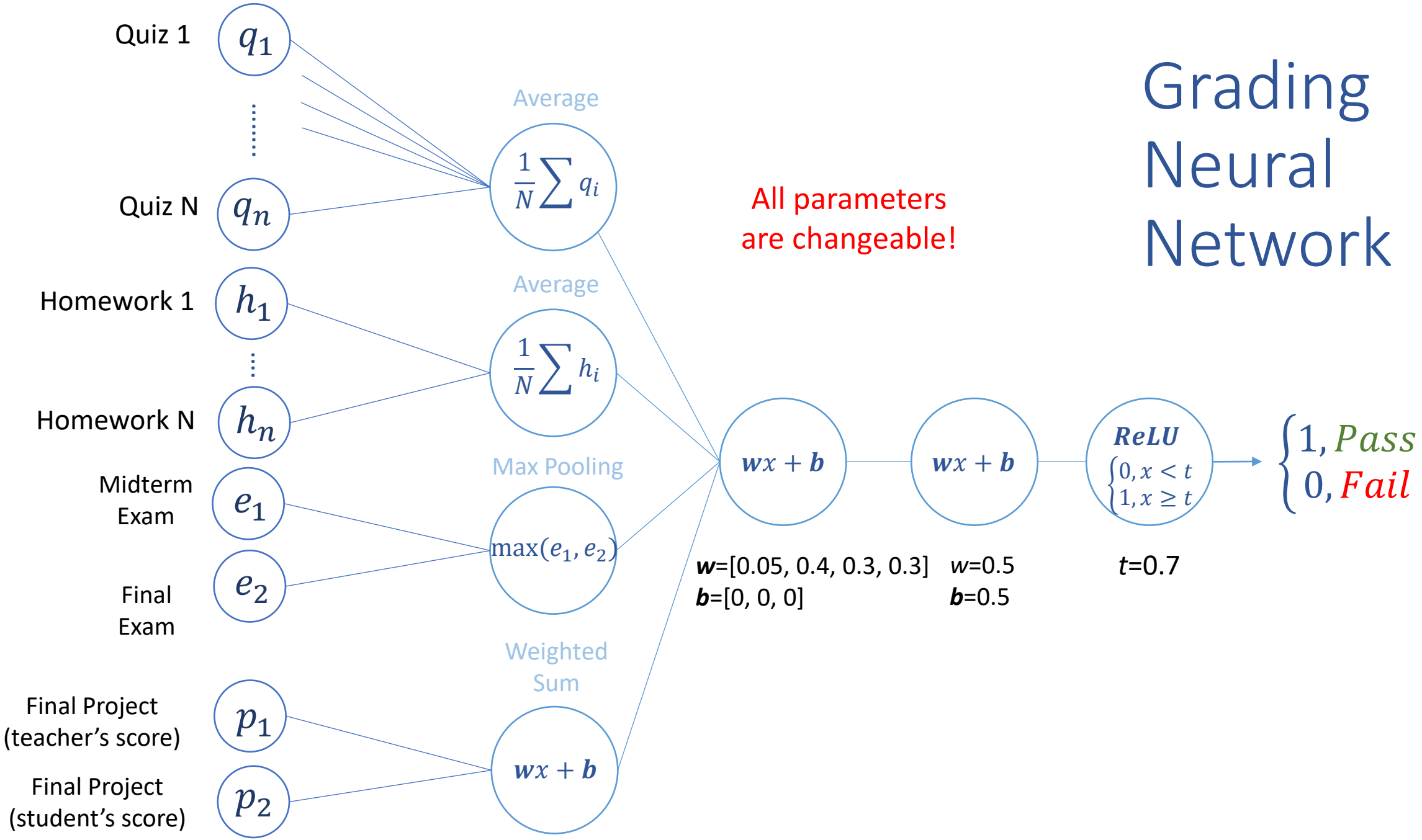
Schedule

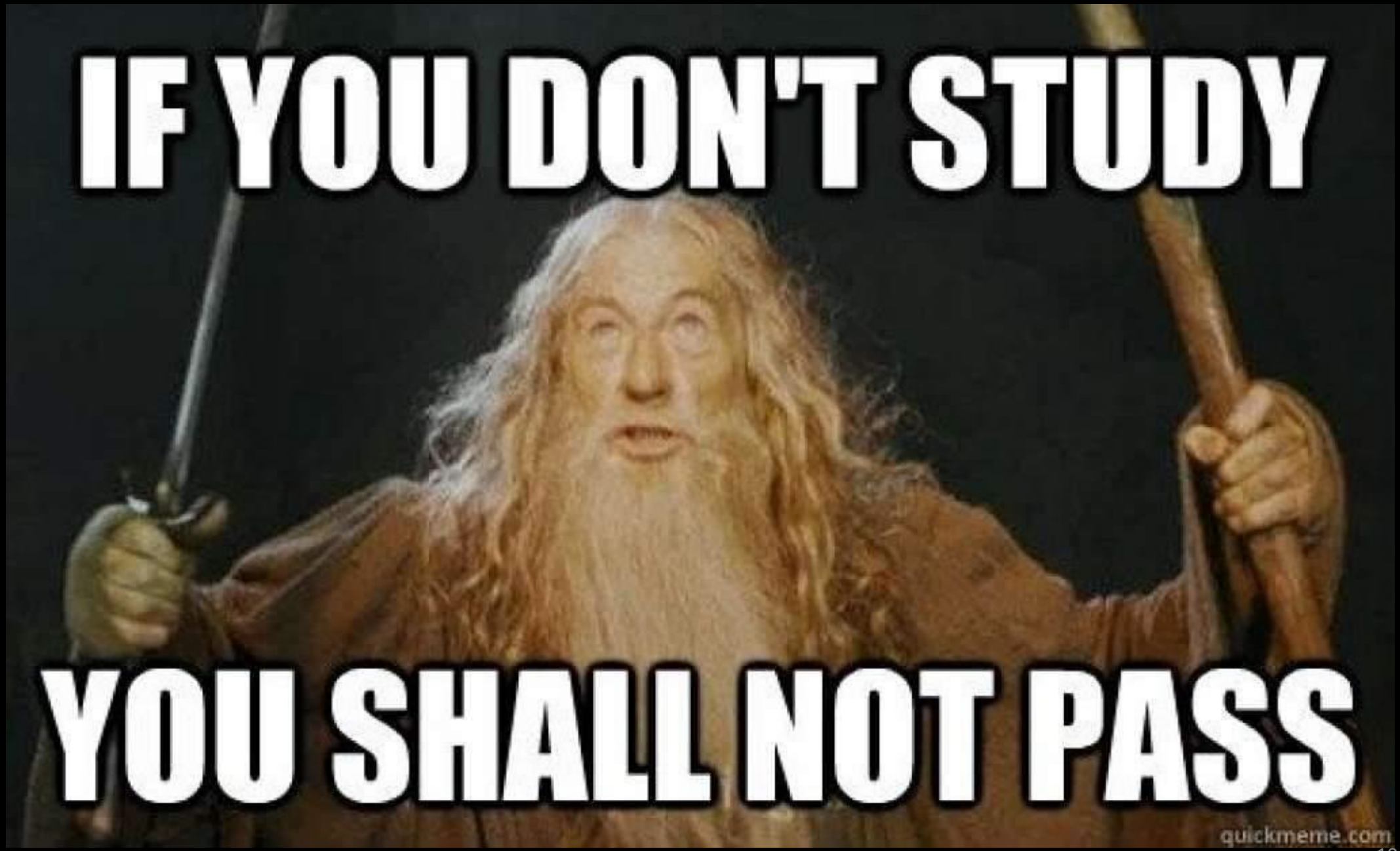
Date	Syllabus
9/23	Past, Present, and Future of AI
9/30	Introduction to Deep Learning
10/7	Applied Math + TensorFlow & Keras
HW1	Extended MNIST (Due 10/20)
10/14	Supervised & Unsupervised Learning
10/21	Convolutional Neural Network (CNN) (Francois (2017), Chapter 5)
HW2	Taiwanese Food 101 (Due 11/3)
10/28	Natural Language Processing
11/4	Recurrent Neural Network (RNN) and Long Short-Term Memory (LSTM)
11/11	Advanced Keras Techniques (Francois (2017), Chapter 7)
11/18	Midterm

Schedule (cont.)

Date	
11/25	Attention & Transformer
12/2	Generative Adversarial Networks (Francois (2017), Chapter 8)
HW3	Stock Price Prediction (Due 12/15)
12/9	Object Detection
12/16	Action Recognition
HW4	Deep Action Recognition (Due 12/29)
12/23	Deep Reinforcement Learning (DRL)
12/30	Deep Learning on Graphs
1/6	Deep Learning in Medical Imaging
1/13	Final Project Demo (YouTube Video, 10mins)
1/20	Final Exam

Grading Neural Network




IF YOU DON'T STUDY
YOU SHALL NOT PASS
quickmeme.com

Facebook Group (NTUT Deep Learning)