



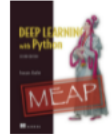


Course Requirements of Building Deep Learning Applications

Prof. Kuan-Ting Lai
2021/9/23

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

BUILDING DEEP LEARNING APPLICATIONS

 NTUT Deep Learning FB Group  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	<ul style="list-style-type: none">Free your imagination to unleash your potential!			
1	Introduction to Deep Learning	<ul style="list-style-type: none">What is the Machine Learning?Neural Networks, Gradient Descent and BackpropagationState-of-the-arts of deep learning	pdf		
2	Applied Math	<ul style="list-style-type: none">Linear AlgebraProbabilityCalculusOptimization	pdf		
3	Introduction to Keras	<ul style="list-style-type: none">Write Keras code on Google ColabCreate a simple Dense Neural NetworksUse DNN to solve classification and regression problemsBatch, Epoch and Learning rate	pdf	IMDB_review financial_news house_pricing	

YouTube Playlist

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

The screenshot shows a web browser displaying a YouTube playlist. The address bar shows the URL: `youtube.com/playlist?list=PL3S3ZnDPwJ-OK-Kz1F1zYf2ZZhXckXDoL`. The browser's bookmark bar includes items like 'Apps', 'Downloads', 'Bookmarks', 'Labels on Google T...', 'Deep Learning', 'Journals', 'Python', 'Drone', 'Unreal', 'Reactjs', 'Hashtag', 'Microprocessor', '31 Science-Fiction...', and 'Soci'.

The YouTube interface features a search bar and a navigation menu on the left with icons for Home, Explore, Subscriptions, and Library. The main content area is divided into two columns:

- Left Column (Playlist Details):**
 - Thumbnail: A video titled "AI & Future" with a duration of 58:59. The thumbnail shows a person in a futuristic setting with the text "AI & Future" and "Prof. Kuan-Ting Lai 2021/9/22".
 - Video Title: "Taipei Tech Deep Learning" (with an edit icon).
 - Metadata: "5 videos • 36 views • Updated today".
 - Privacy: "Public" (with a dropdown arrow).
 - Actions: Share, Copy link, and More options icons.
 - Description: "No description" (with an edit icon).
 - Channel: Profile picture and name "Kuan-Ting Lai".
- Right Column (Video List):**
 - Sort: A menu icon and the word "SORT".
 - Video 1: "AI & Future" by Kuan-Ting Lai, 58:59.
 - Video 2: "Introduction to Keras" by Kuan-Ting Lai, 1:18:27.
 - Video 3: "Machine Learning Basics" by Kuan-Ting Lai, 2:30:44.
 - Video 4: "Convolutional Neural Networks" by Kuan-Ting Lai, 1:45:12.
 - Video 5: "Introduction to Deep Reinforcement Learning" by Kuan-Ting Lai, 54:34.

Course Requirements (under rolling correction)

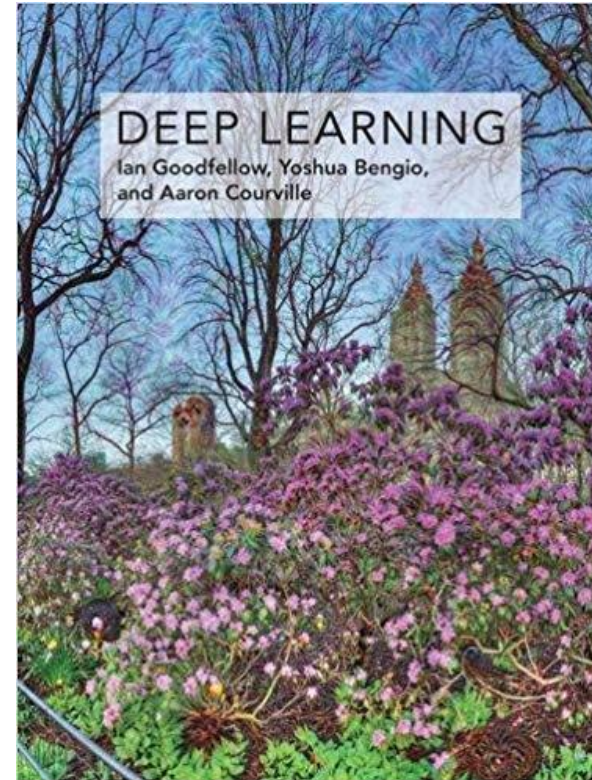
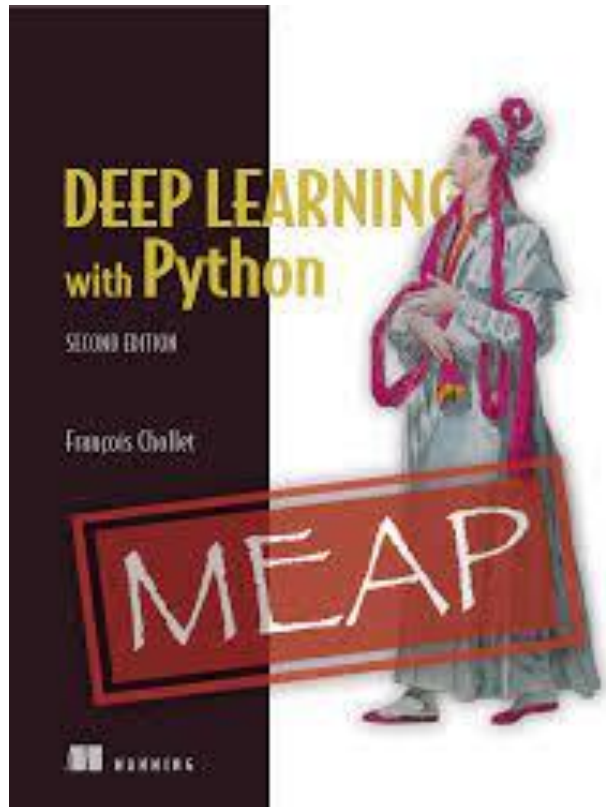
- Kaggle-style homework (40%)
 - Fashion MNIST
 - Taiwanese Food 101
 - Stock Price Prediction
 - Drone Action Recognition
- Exam (30%)
 - Midterm (15%) and Final exam (15%)
- Final Project (30%)
 - Team members (1 ~ 4)
 - YouTube demo video
- Attendance (5%)
 - Quiz

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



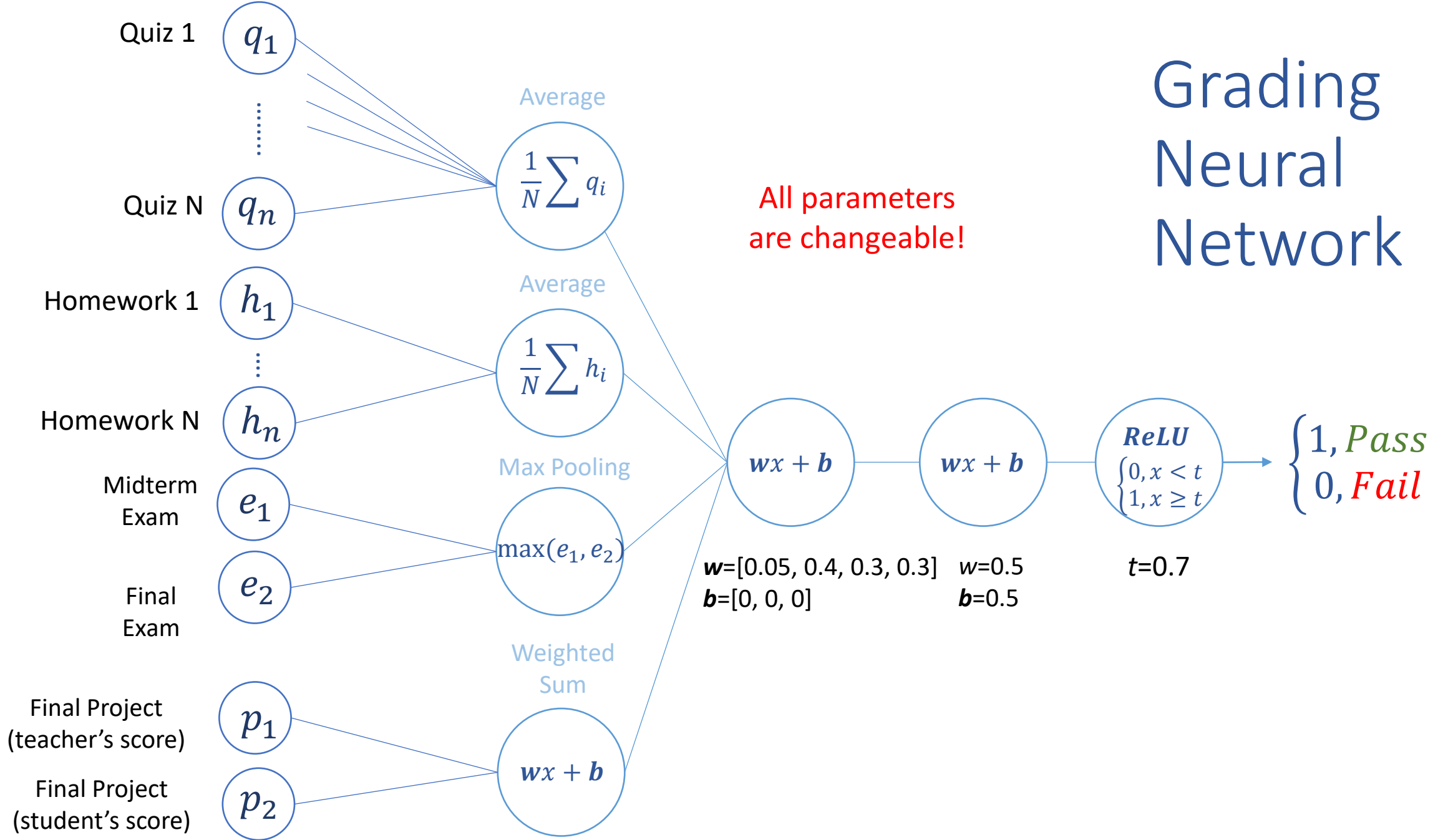
Schedule

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

Facebook Group (NTUT Deep Learning)

