

CS5242 : Neural Networks and Deep Learning

Administrative (Week 3)

Semester 1 2021/22

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Tentative Schedule



Week	Topic	Assessment
1	Introduction	
2	Vanilla NNs - Part 1	
3	Vanilla NNs - Part 2	
4	MLP - Part 1	
5	MLP - Part 2	
6	CNNs - Part 1	Quiz 1
Recess		
7	CNNs - Part 2	Coding test 1
8	RNNs - Part 1	
9	RNNs - Part 2	Quiz 2
10	ANNs - Part 1	
11	ANNs - Part 2	Coding test 2
12	Conclusion	
13		Project delivery

NNs = Neural Networks

MLP = Multi-Layer Perceptron

CNNs = Convolutional Neural Networks

RNNs = Recurrent Neural Networks

ANNs = Attention Neural Networks

Forum

Forum > Lecture/Tutorial > How we should prepare for the quizzes?



How we should prepare for the quizzes?

Posted by LAW ANN LIAT LARRY on 18 Aug 2021 10:27 am. Last modified on 18 Aug 2021 12:09 pm.

Hi Prof Xavier. Can I ask for your advice on how we should prepare for the quizzes? While tutorials or past year papers will be much appreciated, I understand it can be difficult to prepare them as CS5242 is a higher level module. However, a flavour of what's important and how they'll be tested will be very helpful in our preparation.

Thank you!



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CS5242 Evaluation

- This module is 100% CA, i.e., there is no final exam.
- There are 3 components:
 - 2 quizzes, each 15% (Weeks 6 & 9). The quizzes are individual. There is no makeup quiz. The weight of quizzes is 30% in total.
 - 2 coding tests, each 20% (Weeks 7 & 11). The coding tests are individual. Check the schedule for the date of each coding test. There is no makeup coding test. The weight of quizzes is 40% in total.
 - 1 group project, 30% (Week 13). Check the schedule for the date of the project delivery. The project is group-based with a group size of at most 3. Choose your group wisely -- each teammate must contribute equally to the project. Each project will deliver a python notebook with the code and the description of the project (in Markdown), and a short video presentation (each student will present her/his contribution to the project).
 - I will introduce the project on Week 6.

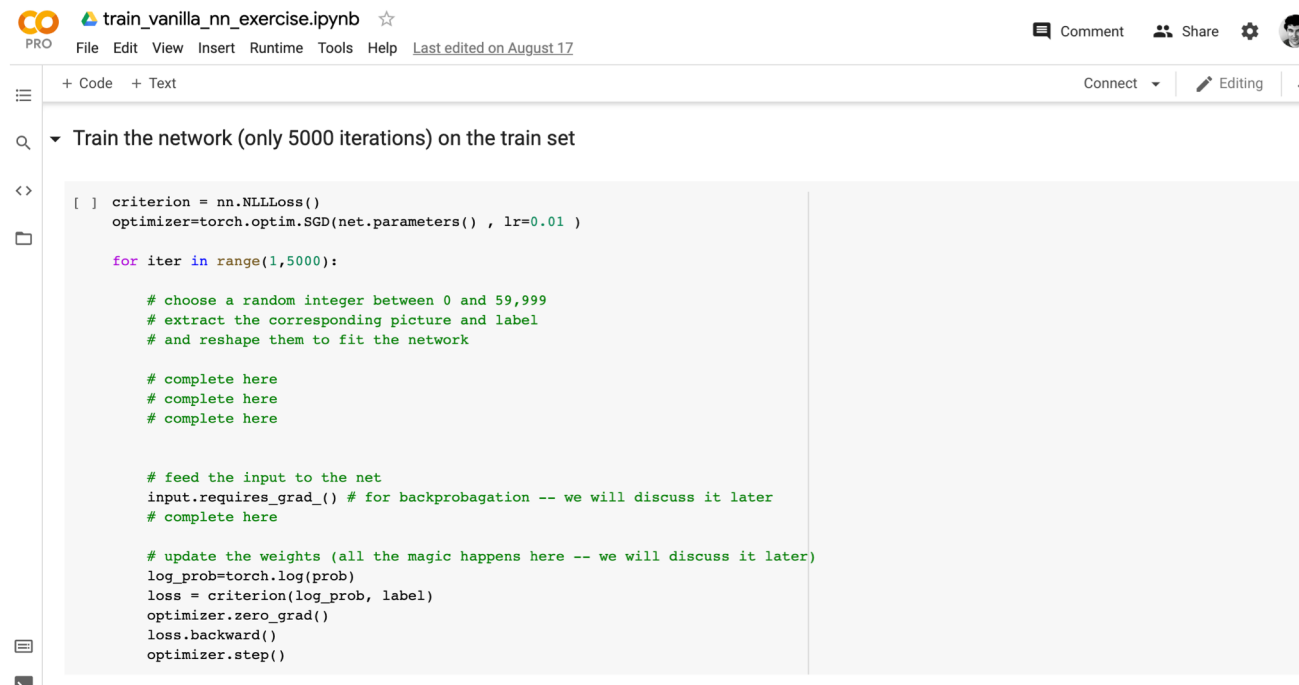
Quizzes

- Quizzes (not yet formalized):
 - Time: 1-1.5hr during Tue 6:30pm-9:30
 - The test will cover all material from beginning up to the week before.
 - The test has 10 questions, from easy, intermediate to difficult questions.
 - The 10 questions will be provided in LumiNUS.
 - Open-book exam : You can use any material (internet, etc).
 - Individual test
 - It would require recording your screen and you (desktop and mobile zoom).
 - Questions will focus on the understanding of the fundamental concepts of deep learning techniques.
 - Possible questions
 - How do you parallelize matrix-matrix multiplication operations?
 - Define a new Softmax function without using the exponential function.

Coding Tests

- Coding tests (not yet formalized):
 - Time: 1-1.5hr during Tue 6:30pm-9:30
 - The test will cover all material from beginning up to the week before.
 - The test has 10 questions, from easy, intermediate to difficult questions.
 - The 10 questions will be provided in a Python Notebook (similar style to course exercises).
 - Answers must be given in the python notebook.
 - It is your responsibility to make sure you can run the python notebook on any platform you choose to use.
 - Open-book exam : You can use any material (internet, etc).
 - Individual test
 - It would require recording your screen and you (desktop and mobile zoom).
 - Questions will focus on the understanding of the fundamental concepts of deep learning techniques, and their implementation with PyTorch.
 - Possible questions
 - Implement and run a new Softmax function using the logarithmic function?
 - Implement and run a vanilla neural network on the classes of Fours and Nines?

Coding Tests



The screenshot shows a Jupyter Notebook interface. At the top, the title bar reads "train_vanilla_nn_exercise.ipynb" with a star icon and a "PRO" label. Below the title bar is a menu bar with "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help". To the right of the menu bar are icons for "Comment", "Share", and a user profile. Below the menu bar is a toolbar with "+ Code" and "+ Text" buttons. The main area of the notebook is a code cell titled "Train the network (only 5000 iterations) on the train set". The code cell contains the following Python code:

```
[ ] criterion = nn.NLLLoss()
optimizer=torch.optim.SGD(net.parameters() , lr=0.01 )

for iter in range(1,5000):

    # choose a random integer between 0 and 59,999
    # extract the corresponding picture and label
    # and reshape them to fit the network

    # complete here
    # complete here
    # complete here

    # feed the input to the net
    input.requires_grad_() # for backprobagation -- we will discuss it later
    # complete here

    # update the weights (all the magic happens here -- we will discuss it later)
    log_prob=torch.log(prob)
    loss = criterion(log_prob, label)
    optimizer.zero_grad()
    loss.backward()
    optimizer.step()
```



Questions?