

1. **Does the .zip file that contains the demo contain everything (for packages, this means the requirements.txt) required to run the entire demo on both colab and from a fresh conda install. The main source should be entitled demoN_topic.tex.**
 - a. The main source isn't named this?
 - i. But I'm not sure why it would be a .tex file...? Is this a typo from course staff or like intended to be a scribe notes item?
 - b. The images are there but don't render
2. **Are there comments in the Demo itself that point to the specific topic covered in lecture pointing to the exact conceptual scope of this demo?**
 - a. Yes
 - i. Batch normalization and dropout are mentioned as well as L1 and L2 regularization
 - ii. Some examples are supposed to be shown, but the image doesn't render...
 - b. I'd suggest connecting explicitly the connection between random data augmentation and regularization as explored in the homework.
 - i. That'd also add some math in the notebook as there is none anywhere else.
3. **Does the demo try to align notation with lecture to the extent possible, and use comments to explain why and where the notation might differ from lecture?**
 - a. There doesn't seem to be any math described in the notes. As a result, there isn't much notation to really match up with the lecture.
4. **Does every cell in the demo run without needing the user to modify anything and do visualizations appear clearly? If not, give comments here...**
 - a. Something to look into is that the demo would have to be downloaded first, then uploaded onto drive, then the drive would need to be mounted, then the python os package should change the working directory to the demo parent directory.
 - i. As of now, the pip install is the first thing on the colab, but that wouldn't work since requirements.txt isn't defined.
 - ii. I am not sure how this is supposed to be distributed, but I had to change the CWD via `os.chdir('<path to uploaded demo on drive>')` after mounting the drive.
 - b. Get this error message after pip requirements install. But after a kernel restart it went away... I guess nothing to worry about then?
 - i. ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the source of the following dependency conflicts.torchtext 0.14.1 requires torch==1.13.1, but you have torch 1.13.0 which is incompatible. torchaudio 0.13.1+cu116 requires torch==1.13.1, but you have torch 1.13.0 which is incompatible. scipy 1.7.3 requires numpy<1.23.0,>=1.16.5, but you have numpy 1.24.1

which is incompatible. numba 0.56.4 requires numpy<1.24,>=1.18, but you have numpy 1.24.1 which is incompatible.

- c. "Download" must be set to true when making the MNIST dataset.
 - i. I got this error: Dataset not found. You can use download=True to download it

5. Does the demo use animations effectively where animations would help convey the relevant idea? If not, give comments here...

- a. The PNG images aren't rendering for me...?
- b. Maybe a diagram of where augmentation fits into the ML training data pipeline?
- c. But at least the image augmentation from torchvision are displayed

6. Is the text in the demo written in correct written English — no spelling errors or grammatical mistakes? If not...

- a. Blurriness is the correct spelling (paragraph 3 of Part 1: Data Augmentation in Theory)
- b. Empricially is the correct spelling under the "More Aggressive Data Augmentations" heading
- c. "These data augmentations force the model to adapt to these changes by relying less on exploiting patterns from idealized versions of images." (add the s)

7. If there are images or drawings within the demo notebook:

- a. Does the demo also include a citation to where the image came from?
- b. If the image/drawing is not cited, is the source code used to generate the image/drawing included in the .zip file? (e.g. if the image was made using Adobe Photoshop, the photoshop source file should be present.)
- c. If the image is from somewhere else, does the license for that image permit its free use by others?
 - i. After looking at the images myself, I see they're cited from PixMix.
 - ii. I don't fully understand why PixMix is the item of choice to display when there doesn't seem to be any related downstream discussion of it.

8. Is the math in the demo correct?

- a. Are there tests within the demo notebook for verifying the correctness of the math as implemented?
- b. Does the math match the approach taken in class, or when there is a difference (e.g. comparing PyTorch's implementation of momentum and how it is taught in lecture) are these explicitly called out clearly?
 - i. No mathematics
 - ii. Maybe it'd be nice if there were some formulas or equations included.

9. If there are calls to python libraries, are all the arguments explicitly specified? (even if you are using default values for parameters, it is important to have them be clearly visible in a demo so that students can see them)
- Yes, almost
 - In the train-test split, label all args
10. Is the code as written in the demo clear and well commented?
- Yes
 - The code was written quite well.
11. Are the plots in the demo clear and comprehensive?
- Are there appropriate error-bars on plots that can reasonably have error bars? (if there is randomness involved, there probably should be error bars)
 - Are the axes clearly labeled?
 - Are the choices for axis scale (log, linear, etc.) correct to most clearly illustrate the phenomenon being illustrated?
 - If there are a small number of points that are being connected with lines, are the points clearly marked?
 - The error plot looks good, titled, and labelled
12. To fully explain and understand the concepts being engaged with using the demo, are there missing examples, calculations, plots, etc. that you feel would be nice to see? Have these been listed out at the end of the demo in a section: “What we wish this demo also had to make things clearer?” The reviewer should feel free to add suggestions here.
- It would be better if the effect of augmentation and no augmentation would be rather than just seeing with augmentation. Essentially, there’s no control group.
 - I also don’t get why PixMix is shown and then fully disregarded after...?
 - Also, why is MNIST the demo of choice? And why is the display of all these augmentations leading up to an augmentation pipeline that does max random rotation of 10 degrees
 - It just seems a bit anticlimactic I guess
13. Any other comments on the demo that would be helpful to evaluate it or make it better for people who might want to learn this material? (Remember, our goal is for the demo to be available on the website along with the scribe notes for all to see.)
- Most of my points are in 12

- b. Otherwise, the text has excellent motivation for why augmentation exists, albeit without math or proof
 - i. Maybe connections of augmentation at a more theoretical level would be nice, not just the high-level concept
- c. It'd be nice if every example of an augmentation also had an explicit example of how it may be used. I'm thinking that lots of people would be confused by why you'd have posterization on your images before training.
- d. The training is a tad long. Maybe if it was made on just half MNIST? Or maybe a larger batch? Not a big deal though.
- e. Can you specify that you're running classification on a handwritten digit dataset (MNIST) ?
- f. Add Color Jitter as an example alone as it's used in the final composition