

CS 7150: Deep Learning — Summer-Full 2020 — Paul Hand

Week 7 — Preparation Questions For Class

Due: Monday June 22, 2020 at 12:00 PM Eastern time via [Gradescope](#)

Name: [Put Your Name Here]

Collaborators: [Put Your Collaborators Here]

You may consult any and all resources in answering the questions. Your goal is to have answers that are ready to be shared with the class (or on a hypothetical job interview) as written. **Make sure to tag each question when you submit to Gradescope.**

Directions: Read the article '[Overcoming catastrophic forgetting in neural networks](#)'.

Question 1. *Provide a summary of the contributions of this paper.*

Response:

Question 2. *Explain Figure 1. Be sure to mention what the ambient space represents, why the shapes are depicted as ellipses, and why these ellipses intersect.*

Response:

Question 3. *In this paper, the authors modify the loss function for task B based on the parameters of a network trained for task A. How does this formulation identify which weights of the neural network are most important for task A? Make sure to comment on whether high Fisher information or low Fisher information indicates importance for task A.*

Response:

Question 4. *How is the algorithm in this paper biologically inspired?*

Response:

Question 5. *Why are randomly permuted MNIST classification problems claimed to be equally hard? Wouldn't a human find it much more difficult to classify images with randomly permuted pixels?*

Response:

Question 6. *Explain Figure 2. Make sure to include the context, a statement of what literally is plotted, what is to be observed, and what is concluded. Separately explain panels A, B, C.*

Response:

Question 7. *The paper says that the EWC algorithm "can be grounded in Bayesian approaches to learning." Explain in your own words what this comment means.*

Response: