3. Flipped Assignment Three: Back Propagation

Steps for this Flipped Module

1. Review Lecture Content leading up to Module
2. Watch Video on Back Propagation
3. View the initial notebook example on GitHub and answer the questions.
4. In-class students: Come ready to answer the remaining questions in an in-class assignment.
5. Distance students: allot time to download the assignment and complete it within about two hours from the time of downloading

Video

In this Flipped module you will be introduced with concepts regarding back propagation in multi-layer neural networks. The video uses minimal verbal communication and fast hand writing (i.e., an explainer video). I recommend viewing the video full screen in the max resolution possible to see all notation clearly.

In the video, we will be using **sensitivity vectors**and explicitly defining the **Jacobian** for chain rule used in a system of equations.  The video also explains the process of converting operations into only linear algebra operations of ALL instances, **X**, rather than **x***(i).*I hope you find this useful:

[https://youtu.be/WRr2e7mKCUY (Links to an external site.)Links to an external site.](https://youtu.be/WRr2e7mKCUY)[](https://youtu.be/WRr2e7mKCUY)

Example Questions

The GitHub Link to the initial part of the assignment can be found here: [https://github.com/eclarson/MachineLearningNotebooks/blob/master/Flipped%20Assignments/ICA3\_MachineLearning\_PartA.ipynb (Links to an external site.)Links to an external site.](https://github.com/eclarson/MachineLearningNotebooks/blob/master/Flipped%20Assignments/ICA3_MachineLearning_PartA.ipynb)

During class you will complete a longer version of the above example notebook. We will also discuss and answer everything from the example notebook. Please see the course schedule for when this flipped assignment occurs.

Assignment Link (Made Available during Lecture)

On the day of the assignment you can download from the assignments page here: [ICA3](https://smu.instructure.com/courses/49399/assignments/166930)