

Peer Review

Instructions: The project author receiving the review is responsible for managing this document and making sure all peer reviewers are received and of high quality. All sections should be filled out. The project author is also responsible for filling out how they will respond to the review in each section.

Once complete, upload PDF to canvas final project submission.

Detailed Steps:

1. Prepare project
2. Request reviews
3. Receive written reviews
4. Meet to discuss review and document specific edits to project
5. Make project edits

Project Author: Jake Ford

Project Title: Deep Neural Networks for Landcover Classification

Link to Document for Review:

<https://github.com/ThisFord/GIS5571-arc1/tree/main/FinalProject>

Continue below for Peer Reviews

Peer Review 1

Name: Lauren Roach

Email: roach258@umn.edu

Directions: Fill out rubric and answer prompts. Project author fill out last section.

Category	Description	Points Possible	Score
Structural Elements	All elements of a lab report are included (2 points each): Title, Notice: Dr. Bryan Runck, Author, Project Repository, Date, Abstract, Problem Statement, Input Data w/ tables, Methods w/ Data, Flow Diagrams, Results, Results Verification, Discussion and Conclusion, References in common format, Self-score	28	28
Clarity of Content	Each element above is executed at a professional level so that someone can understand the goal, data, methods, results, and their validity and implications in a 5 minute reading at a cursory-level, and in a 30 minute meeting at a deep level (12 points). There is a clear connection from data to results to discussion and conclusion (12 points).	24	20
Reproducibility	Results are completely reproducible by someone with basic GIS training. There is no ambiguity in data flow or rationale for data operations. Every step is documented and justified.	28	26
Verification	Results are correct in that they have been verified in comparison to some standard. The standard is clearly stated (10 points), the method of comparison is clearly stated (5 points), and the result of verification is clearly stated (5 points).	20	20
		100	94

Describe 3-5 things that are done well in the project.

- Nice data flow diagram! I think the way you included the diagram which divides tasks between human intensive and computationally intensive is a great way to explain the methodology and provide context for some of the methods chosen.
- I think having multiple images that model the Chesapeake Bay conservancy map snapshots you have chosen as placeholders in your results work really well to demonstrate your results.
- I like the inclusion of the land classification figure.
- You have a strong command of this topic and of the methodology needed to complete your project. I was not familiar with this type of process at all before reading your draft, and even though this is a draft, I definitely am coming away from reading your report with an understanding of how this process works. Good luck with running your code and gathering your results! And great job so far.

Describe 3-5 areas you could see room for improvement. Be specific and provide suggestions for how these areas could be improved.

- It would be great to see another data flow diagram that includes the sources you use, with the specific range you are working on, and any edits you are making to the process to adapt it for another, smaller area of the US.
- For someone who doesn't understand much coding syntax, as a reader I would appreciate a greater explanation in your methods section describing how the classifier runs on the MSI clusters, etc. Even though the data flow diagrams describe the entire process, making your report accessible to readers unfamiliar with this type of analysis requires some narration of your methods.
- I would recommend providing a brief explanation for each of the figures you end up including in your results, to describe not only what they capture but also how each figure is different for your reader.

PROJECT AUTHOR ONLY:

What specific actions will you take to respond to this review?

This is great feedback. I will make more detailed explanations of the steps of the process in the methods section and create a data flow diagram that is specific to this project that outlines every step in the process directly. I'll specifically expand on the role of the super computer cluster in the process and detail what gets run there and what I get back after processes are run (ie the weights matrix for the classifier.) I'll fill out the language in the figure captions as well.

Peer Review 2

Name: Jakub Soroka

Email: sorok028@umn.edu

Directions: Fill out rubric and answer prompts. Project author fill out last section.

Category	Description	Points Possible	Score
Structural Elements	All elements of a lab report are included (2 points each): Title, Notice: Dr. Bryan Runck, Author, Project Repository, Date, Abstract, Problem Statement, Input Data w/ tables, Methods w/ Data, Flow Diagrams, Results, Results Verification, Discussion and Conclusion, References in common format, Self-score	28	28
Clarity of Content	Each element above is executed at a professional level so that someone can understand the goal, data, methods, results, and their validity and implications in a 5 minute reading at a cursory-level, and in a 30 minute meeting at a deep level (12 points). There is a clear connection from data to results to discussion and conclusion (12 points).	24	24
Reproducibility	Results are completely reproducible by someone with basic GIS training. There is no ambiguity in data flow or rationale for data operations. Every step is documented and justified.	28	26
Verification	Results are correct in that they have been verified in comparison to some standard. The standard is clearly stated (10 points), the method of comparison is clearly stated (5 points), and the result of verification is clearly stated (5 points).	20	20
		100	98

Describe 3-5 things that are done well in the project.

I think you did a great job on the whole project! It's clear that you have a deep understanding of the material and that you applied your knowledge fully. I appreciated the detail that went into explaining the data and their various uses. Very nice figures and the accuracy assessment at the end is an awesome 91%. Very cool and practical technology to be able to use. Great work Jake!

Describe 3-5 areas you could see room for improvement. Be specific and provide suggestions for how these areas could be improved.

As someone who is not super familiar with deep neural networks, perhaps providing just a sentence or two to describe how they work in an introduction would be helpful. Further expanding on the methods and results is a great next step as well, maybe just on how each step relates to the ones before it, as well as how all of your data is implemented. Overall, a little more detail to make the project more reproducible, otherwise a really solid start!

PROJECT AUTHOR ONLY:

What specific actions will you take to respond to this review?

Again, great feedback. Looks like I definitely need an introductory section in the methods portion about how classifiers and DNNs work, keeping it high level. I'll include a 2-3 sentence bit in the abstract as well. Definitely need more work on the methods section and to improve the flowchart to make the processes clear.

Peer Review 3

Name: Taylor Andersen-Beaver

Email: and03449@umn.edu

Directions: Fill out rubric and answer prompts. Project author fill out last section.

Category	Description	Points Possible	Score
Structural Elements	All elements of a lab report are included (2 points each): Title, Notice: Dr. Bryan Runck, Author, Project Repository, Date, Abstract, Problem Statement, Input Data w/ tables, Methods w/ Data, Flow Diagrams, Results, Results Verification, Discussion and Conclusion, References in common format, Self-score	28	28
Clarity of Content	Each element above is executed at a professional level so that someone can understand the goal, data, methods, results, and their validity and implications in a 5 minute reading at a cursory-level, and in a 30 minute meeting at a deep level (12 points). There is a clear connection from data to results to discussion and conclusion (12 points).	24	24
Reproducibility	Results are completely reproducible by someone with basic GIS training. There is no ambiguity in data flow or rationale for data operations. Every step is documented and justified.	28	26
Verification	Results are correct in that they have been verified in comparison to some standard. The standard is clearly stated (10 points), the method of comparison is clearly stated (5 points), and the result of verification is clearly stated (5 points).	20	20
		100	98

Describe 3-5 things that are done well in the project.

- Overall very well written and it's clear you have a deep understanding of the background information, path of the project, and the details needed to complete it
- You have many sets of data needed for this project and you have already located those datasets and understand the pieces you need from each to complete the project
- Great that you already have a data flow diagram you are working off of and a set of results that you have to compare the results you should be expecting which will help with reproducibility.

Describe 3-5 areas you could see room for improvement. Be specific and provide suggestions for how these areas could be improved.

- It may help to create your own data flow diagram that combines the ones from the CBC with the steps you will be taking to reproduce the model developed by the CBC
- Not being super familiar with neural networks a little more background on this study and process would be helpful to understand the process more
- It may also be helpful explaining exactly how what you are doing is different from what CBC did
- Overall, great work!! I look forward to seeing the end product!

PROJECT AUTHOR ONLY:

What specific actions will you take to respond to this review?

Absolutely needs a data flow diagram. That will help clarify everything. Can definitely give a brief review of what DNNs are, and to explain the particulars of my approach v. CBC's work (explain the transfer learning process and some pitfalls.)