

Project Final Report Handout and Rubric

Introduction

The final project report is your final deliverable for this project and for the course. Congratulations on getting here! This final deliverable is split into two parts:

- **Part A** Final Report
- **Part B** Individual Contribution to Project

How to submit

Any work that is submitted up to 24 hours past the deadline will receive a 20% grade deduction. No other late work is accepted. Quercus submission time will be used, not your local computer time or any other screenshots that you provide. You can submit your work as many times as you want before the deadline, so please submit often and early. The submission of the final deliverables will be done in two parts:

Part A - Project Final Report: The final report will be submitted as a **group** on Quercus by the Final Deliverable deadline. This document should be written using Latex based on the course template and submitted in PDF format. There is a **9-page limit** (ICLR conference standard) for the main text and unlimited references is applied. However, a concisely written document is preferred. The page limit is hard: A 10-page document will receive a 20% penalty (in addition to any late penalties), and any document that is longer than 10 pages will receive 0%.

Part B - Individual Contribution: The contribution summary will be submitted **individually** on Quercus by the Final Deliverable deadline as a PDF file. This document should also be written using Latex based on the course template. There is a 2-page limit (ICLR conference standard) where reports with more than 2 page will receive a 100% penalty.

PART A: Final Report

The project final report document is graded out of 60 points.

- **Introduction (2 points):** A brief description of the motivations behind your project, the goal of your project, why it is interesting or important, and why machine learning is a reasonable approach.
 - 2/2 An introduction that clearly describes the project goal, why the project is interesting and/or useful, and convincingly describes why machine learning is an appropriate tool for the task.
 - 1/2 The introduction describes the project but is vague or has information that is factually incorrect.
 - 0/2 The introduction does not make it clear what the specific goal of your project is.
- **Illustration / Figure (2 points):** A figure or a diagram that illustrates the overall model or idea of your project. The idea is to make your report more accessible, especially to readers who are starting by skimming your work. For the project, taking a picture of a hand-drawn diagram is fine, as long as it's legible. PowerPoint is another option. You will not be penalized for hand-drawn illustrations – you are graded on the design and illustrative power.
 - 2/2 A well thought-out figure that communicates the core idea of your project and architecture immediately.
 - 1/2 An illustration that does the job, but is not particularly clear, or possibly too wordy.
 - 0/2 The illustration is significantly lacking in some respect or contain factual inconsistencies or inaccuracies.
- **Background & Related Work (2 points):** A description of at least 5 related work in the field, to provide reader a sense of what has already been done in this area, e.g., papers or existing products/software that do a related thing.

- 2/2 Briefly describes at least prior work related to your project to put your project into context. Your descriptions need not be complete but should contain important work.
 - 1/2 Background that has omissions or factual incorrectness, but otherwise places your project into context.
 - 0/2 Background contains too much information not related to your project, or has major omissions of content, or does not sufficiently put your project into context.
- **Data Processing (4 points):** Describe the data that you have collected and if you have preprocessed it in any way. Be clear and specific when describing what you have done, so that a classmate can reproduce your work. Show some statistics and examples of your data. The extent of data processing will vary from project to project, and you will be graded accordingly.
 - 4/4 Clearly describes sources of data, and the steps you took to clean and format your data. Statistics and data example are well-chosen and gives readers a “feel” for your data.
 - 3/4 Mostly clear description, but some aspects of the data processing steps are vague. Statistics and data example are somewhat illustrative/helpful.
 - 2/4 Vague description or missing key information about where your data comes from or what you did. No example data shown, or the ones shown are not illustrative.
 - 1/4 Incomplete information.
- **Data Processing (4 points):** Describe the data that you have collected and if you have preprocessed it in any way. Be clear and specific when describing what you have done, so that a classmate can reproduce your work. Show some statistics and examples of your data. The extent of data processing will vary from project to project, and you will be graded accordingly.
 - 4/4 Clearly describes sources of data, and the steps you took to clean and format your data. Statistics and data example are well-chosen and gives readers a “feel” for your data.
 - 3/4 Mostly clear description, but some aspects of the data processing steps are vague. Statistics and data example are somewhat illustrative/helpful.
 - 2/4 Vague description or missing key information about where your data comes from or what you did. No example data shown, or the ones shown are not illustrative.
 - 1/4 Incomplete information.
- **Architecture (4 points):** A description of the final neural network model architecture. Do not describe all the intermediate models that you have tried. Instead, present the model (or models) whose quantitative results you will show. These should be your most interesting models. Be as specific as you can while being concise. Readers should be able to reproduce a model similar enough to yours and obtain a similar performance.
 - 4/4 Clear and concise description of your model architecture, so that a classmate can reproduce a model similar to yours that will perform similarly.
 - 3/4 Good description of your model architecture, but with either not enough detail to be reproducible, or too much unnecessary detail not useful for reproducing your model.
 - 2/4 Some issues with the description (inconsistencies, factual inaccuracies)
 - 0/4 Unclear description of the type(s) of neural network model that you will use, or a choice that is inconsistent with your problem.
- **Baseline Model (4 points):** Describe a simple, baseline model that you will compare your neural network against. This can be a simple model that you build, a hand-coded heuristic model (that does not use machine learning), or a machine learning model with few hyperparameters and can be trained quickly.
 - 4/4 A reasonable choice of baseline, accompanied by a description of the baseline so that a knowledgeable classmate can find, reproduce, or build a similar version.

- 2/4 An adequate description of a reasonable baseline.
- 0/2 Poor choice of baseline inconsistent with the problem.
- **Quantitative Results (4 points):** A description of the quantitative measures of your result. What measurements can you use to illustrate how your model performs?
 - 4/4 Insightful, well-chosen measurements that illustrate how your model performs.
 - 3/4 Minor issue with the choice of measurements, or the way the result is presented.
 - 2/4 Major issue with the choice of measurements, or misleading presentation of the results.
 - 0/4 No result presented.
- **Qualitative Results (4 points):** Include some sample outputs of your model, to help your readers better understand what your model can do. The qualitative results should also put your quantitative results into context (e.g., Why did your model perform well? Is there a type of input that the model does not do well on?)
 - 4/4 Insightful, well-chosen outputs that illustrate how your model performs. It is clear how you determined which outputs to show, and why.
 - 3/4 Minor issues with the choice of outputs, or the way the result is presented.
 - 2/4 Some issues with the choice of outputs, or the way the result is presented.
 - 0/4 No result presented.
- **Evaluate model on new data (10 points):** Describe the efforts taken to ensure the results are a good representation of the model's performance on new data. Can you evaluate model on new data? This will depend greatly on the problem being solved.
 - 10/10 Team is able to obtain new samples that have not been examined or used in any way to influence the tuning of hyperparameters. Model performance meets or exceeds expectations for the problem being solved.
 - 7/10 Model performance does not meet expectations on new samples.
 - 4/10 Model performs inconsistently on new samples, but an attempt has been made to correctly evaluate the model.
 - 2/10 Model performance is far below expectations on new samples, but an attempt has been made to correctly evaluate the model.
 - 0/10 No attempt made to evaluate the model on new data.
- **Discussion (8 points):** Discuss your results. Do you think your model is performing well? Why or why not? What is unusual, surprising, or interesting about your results? What did you learn?
 - 8/8 Insightful interpretation of the results that is specific to your project. Exceeds expectations.
 - 6/8 Sound interpretation of the results.
 - 4/8 Some issues with the interpretation.
 - 0/8 Discussion does not interpret results, only repeats them.
- **Ethical Considerations (2 points):** Description of a use of the system that could give rise to ethical issues. Are there limitations of your model? Your training data?
 - 2/2 Thoughtful consideration of ethical issues discussed in class, applied to your model.
 - 1/2 Some consideration of ethical issues in data collection but missing key elements.
- **Project Difficulty / Quality (6 points) :** A measure of how “difficult” the project is, and how well your model performs given the difficulty of your problem. If your problem is more difficult than what one might expect, you should clearly articulate why in the body of your report.
 - 6/6 Team creates a model that performs better than expected on a challenging project. Team demonstrates learning beyond the requirements of (e.g.,) the labs.

- 4/6 Meets the expectations of the difficulty of the project, and the performance looks adequate. A poor model performance is justified.
 - 2/6 Project is “too simple” or does not perform as well as expected.
 - 1/6 Below expectations.
- **Project Difficulty / Quality (6 points)** : A measure of how “difficult” the project is, and how well your model performs given the difficulty of your problem. If your problem is more difficult than what one might expect, you should clearly articulate why in the body of your report. There are a variety of ways to increase your project complexity, even after the fact. For example: (1) Try different models, (2) Try averaging predictions for those different models, (3) Use data augmentation techniques, and discuss results, and (4) Explore how to make your model smaller.
- 6/6 Team creates a model that performs better than expected on a challenging project. Team demonstrates learning beyond the requirements of (e.g.,) the labs.
 - 4/6 Meets the expectations of the difficulty of the project, and the performance looks adequate. A poor model performance is justified.
 - 2/6 Project is “too simple” or does not perform as well as expected.
 - 1/6 Below expectations.
- **Structure, Grammar & Mechanics (8 points)**: We are looking for a document that is easy to follow, grammatically correct, and well-written. The document must be written using Latex based on the course template.
- 8/8 Clear, concise, and well-written document. Exceeds expectations.
 - 7/8 Well-written document that could be more concise or less error prone.
 - 6/8 Well-written document that has some issues with grammar, mechanics, or structure. Meets expectations.
 - 5/8 Reasonably written document with grammar, mechanics, or structural issues.
 - 4/8 Document has many issues.

PART B: Individual Contribution

Project work is very common in the real-world and it is often the case that not everyone on the team contributes equally. This can occur for several reasons ranging from differences in job hierarchy, expertise, skill level, and responsibility, which is often reflected in each member’s salary. In some cases, inconsistencies in contribution could come from differences in prioritization, time management, motivations/interests of team members. When differences in contribution are large, they can affect the team dynamics. To maintain a strong team environment, it is important that everyone on the team is appropriately acknowledged.

As a final part of the project submission each group member will submit a separate document (no more than 2 pages) that describes their personal contribution to the project. This document should be written using Latex based on the course template. Submit your contributions individually on Quercus by the Final Deliverable deadline.

Rubric:

- 0 – 100% The grades of individual team members may be scaled to reflect their contribution to the project. Small differences in contribution are normal and do not warrant any grade adjustments.
- 0% Team members that do not complete Part B: Individual Contribution will receive a grade of 0% on the final deliverable.

Contribution Summary. The individual contribution should be summarized in a table with no more than 2 pages. The contribution summary should provide:

APS360: Applied Fundamentals of Deep Learning

- An appropriate percentage score of the contribution of all team members. For example, a team of 4 may have the following total contribution.

Stacy	Mei	Amin	Raul
28%	20%	30%	22%

- Up to 10 substantial tasks that you have completed or contributed to in the project. These are not limited to coding and can include data retrieval, research, documentation, and presentation work.
- In cases where you were not the only one working on a part of the project, you should provide a percentage of contribution to the task.
- Up to 5 tasks which you were assigned or agreed to take on that you were unable to complete. These tasks could come from the task assigned in the proposal and progress reports. Keep in mind that it is completely reasonable that not all tasks were completed as planned.

To conclude, each member will discuss with the other team members to come up with an appropriate percentage score to indicate their overall contribution to the project. This score should fairly acknowledge the contributions of all team members.