# CS2 Rubric - Emotion Recognition

DS 4002 – Spring 2023 – Peter Shin
Due: May 10, 2023 noon
Submission format: Link to github repository to canvas

**Individual Assignment**

**General Description:** Submit to UVACanvas a link to your case study repository.

**Preparatory Assignments:** The class discussions on image-data analysis as well as other projects you have done in this class.

**Why am I doing this? This exercise will help you understand how to use image data to create machine learning models.** It is not an expected that you are familiar with using image data with machine learning techniques. This case study is a way for you to step out of your comfort zone and become more familiar with different machine learning methods of modeling with a project that has real applications in modern-day society. With facial emotion recognition, there are numerous resources available that can help understand why it's important to the future and the provided dataset is widely used to test machine learning models. Through this experience, you will be able to gain more understanding of data science and analysis techniques.

- Course Learning Objective: Research and create a testable hypothesis/model
- Course Learning Objective: Develop a project plan and translate the plan to analysis using data science principles
- Course Learning Objective: Prepare findings in a presentative manner

**What am I going to do?** You will begin by first, reading the one-page excerpt that provides a brief overview of this facial emotion recognition case study. In this excerpt, you will be given context for the assignment as well as the deliverable. Then you will read the provided resources to gain a better understanding of the motivations behind this assignment. Following the readings, take some time to reflect on the assignment. After, consider previous assignments that you have completed as their format and spec breakdown may help you understand and complete this assignment and prepare any research as necessary. Perform exploratory data analysis with the FER-2013 dataset provided on Kaggle and record any interesting or noteworthy findings. Create an analysis plan and implement the code for creating machine learning models that can predict the emotion of a given facial expression. All of the code and figures for presentation should follow similarly to previous assignments in its own Github repository and the link to that repository must be provided in the final submission.

**Tips for success:**

- Look over previous assignments done for this class. They should give you a good idea of what to expect in terms of the work desired in the submission.
- Do research on what prediction models would be optimal for image analysis.
- It's not always possible to get a good accuracy. Write down any noteworthy things you learned about this specific data or data science techniques in general.

**How will I know I have Succeeded?** You will meet expectations for this assignment when you follow the criteria in the rubric below.

| Spec Category | Spec Details |
|---|---|
| Formatting | ● A single Github Repository (submitted via link on Canvas).<br>● It should contain:<br>○ A README.md file<br>○ A LICENSE.md file<br>○ A SRC folder<br>○ A DATA folder<br>○ A FIGURES folder |
| README.md | ● Goal: This file serves as an orientation to everyone who comes to your repository.<br>● Divide content into sections.<br>● SRC section<br>○ Give a description on how to install/build your code and the usage of your code.<br>● DATA section<br>○ Data Dictionary<br>○ Link to data<br>○ Relevant notes about the data<br>● FIGURES section<br>○ Select figures and write descriptions that help provide context for those who come to the repository.<br>● REFERENCES section<br>○ All references and acknowledgements should be provided at the end of the file. |
| LICENSE.md | ● Goal: This file explains to a visitor the terms under which they may use and cite your repository.<br>● Select an appropriate license from the Github options upon creation. |
| SRC folder | ● Goal: Thai folder contains all the source code for your project.<br>● Include all code files that are produced.<br>● The high-level documentation for this code lives in the main level README.md file. |
| DATA folder | ● Goal: This folder contains all of the data used in this project.<br>● If the data fits, put it in this folder.<br>● If the data does not fit, include a single file explaining how to obtain the data. |
| Figures folder | ● Goal: This folder contains all figures generated by the project.<br>● Any figures that are generated that are relevant should also include a note. |
| References | ● All references should be listed at the end of the README.md document.<br>● Use IEEE Documentation Style. |

Acknowledgements: Special thanks to Professor Alonzi for providing examples with similar rubrics.