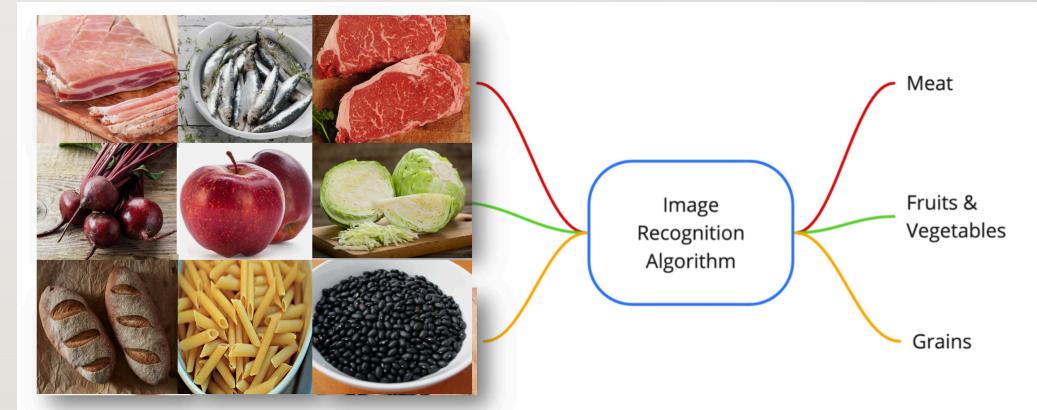


Food Ingredients Recognition

Presented by Nuno Delgado
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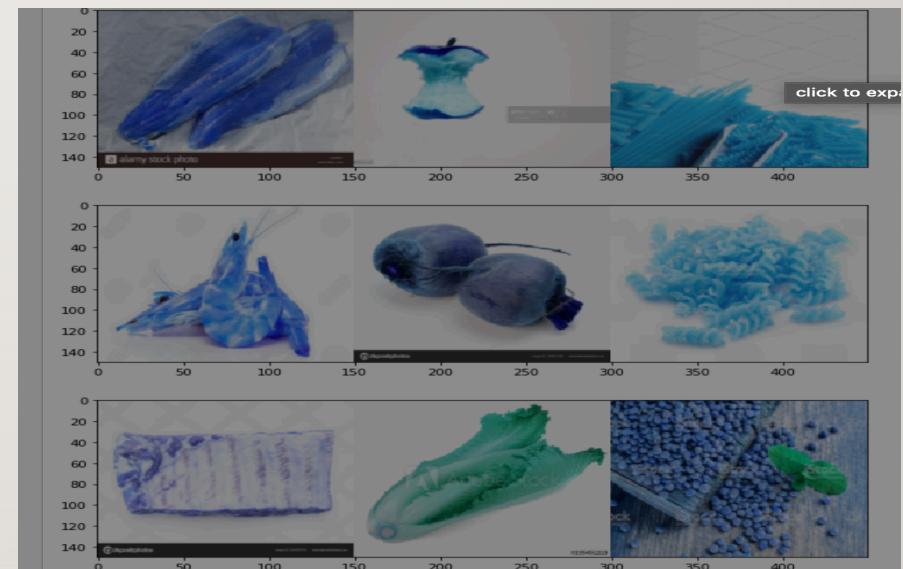
BUSINESS UNDERSTANDING

- More and more people is getting into the culinary
- I'm looking for help on routine meals with a integrated system(recognition ingredients + recommendation recipes)
- So this project will be focus on the first part of it.
- Build a high accurate image recognition model, good enough to be used in a model deployment



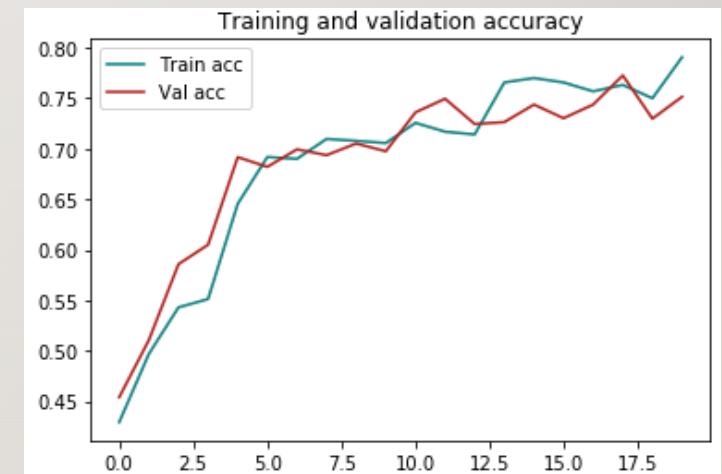
DATA UNDERSTANDING

- Dataset has approximately 5,530 images of 63 food ingredients primarily obtained from a combination of sources
- The ingredients are divided by 3 main groups Meat, Grains and Fruits/Vegetables.
- These three groups represent the main part of the food pyramid and are essential for the most part of the recipes.



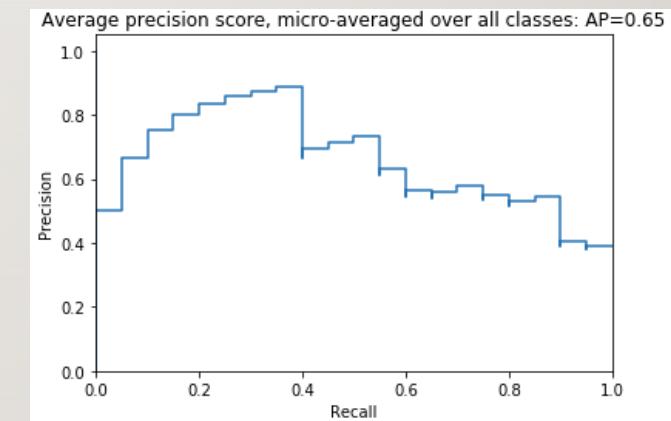
MODELING

- I tackle the problem of food ingredients recognition as a multi-class learning problem.
- I propose a method for adapting a highly performing state of the art CNN in order to act as a multi-class predictor for learning food ingredients in terms of their nature.
- In order to carry out the modelling, I split the final dataset into 3 subsets. Train (3587 images), Validation(471 images) and Test (544 images).
- The modeling based on three models, two of them were used to improve the accuracy score of the baseline model



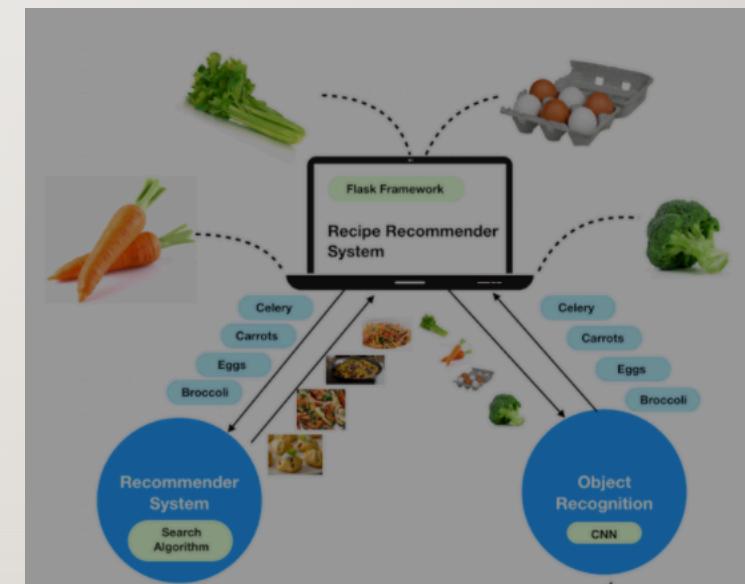
EVALUATION

- After analysing the three models, the model that shows better performance is the baseline model, more stable, high accuracy and low overfitting.
- To evaluate the winning model, I used Average precision because gives the average precision at all such possible thresholds and Precision-Recall metric.
- In this project, is an useful measure of success of prediction because the classes are imbalanced and I am not aiming any specific decision threshold.



FUTURE CONSIDERATIONS

- In future, the baseline model will be expanded upon in order to achieve a greater level of accuracy and the classification model will focus on classifying each ingredient on its own representation instead of by group.
- The model will still have several improvements before the final deployment



**Thank You
For Your Attention**