



Food Image Recognition Project Planning

Team11

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Use Cases

Use Case 1 : Customers

- ❖ Customers take pictures of their food, upload the food image to this image classifier, and it will tell them what categories their foods belong to.

Use Case 2 : Restaurants

- ❖ Chefs/owners collect categories and images stored in this image classifier, to see the reports of the most frequently liked/visited categories of foods.

Use Case 3 : Businesses

- ❖ Businesses/commercials upload a large number of food images to be classified into categories automatically by this image classifier, and save the categories for further use.



Methodology

1. Processing images
 - ❖ Resizing
 - ❖ Rescaling
 - ❖ Standardizing
2. Algorithms of Artificial Intelligence for multiple food image classification
 - ❖ TensorFlow
 - ❖ Convolutional Neural Networks
 - ❖ Inception Model
3. Potential expansion for more food category classification
4. Visualization
 - ❖ Zeppelin/Play



Data Sources

ETH Food-101: https://www.vision.ee.ethz.ch/datasets_extra/food-101

- ❖ A dataset of 101 food categories with 101,000 colored images, with a size of 5GB.

Initial Plan: Use 20 categories with 2020 images, with a size of 1GB.

Dataset distribution:

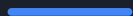
- ❖ Training Dataset - 70%
- ❖ Test Dataset - 30%



Milestones



Data cleansing &
Image Processing



Artificial Intelligence



Potential Expansion



Visualization
& Wrap-up



Scala Programming & Repo

- Image processing - Scala
- Neural network (CNN - InceptionV3) in Scala
- Zeppelin, Play - Scala

Repo:

<https://github.com/ToughJellyfish/ScalaFoodImgRec>



Acceptance Criteria

- ❖ Food image recognition $\geq 60\%$; recall $\geq 50\%$
- ❖ The top probability for food classification: precision $\geq 60\%$, recall $\geq 40\%$
- ❖ The probability of getting correct food categories within 5 guesses: precision: $\geq 70\%$, recall: $\geq 50\%$



Goals

- ❖ With our classification mechanism we aim to help food customers, foodies, app users, and restaurants to classify foods better!
- ❖ It's important to know your food and eat like a boss!
- ❖ We'd like to give users the good experience about classifying certain types of food using cutting-edge AI technology, integrating with Scala knowledge!