Deep Learning Project Proposal

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1 Problem

The problem we are trying to address is figuring out ingredients/description/recipe by looking at a food item. This might be of interest to a person at a restaurant thinking of replicating same at home, or a just a curious foreigner trying to figure out features of food in front of him. If successful this has enormous potential, starting from dietary tracking to recommendation engines to allergy prevention.

2 Research Goals

In this project we are trying to figure out if there exists a feature mapping between image of a food item and it's ingredients. Similarly if, there exists a pattern in recipes for similar food items.

3 Datasets

We found these datasets online so far, as result of a quick google search. We might have to scrape few additional once we start working on project to fill the gaps.

- Epicurious Website dataset
- Food41
- Chinese FoodNet
- iFood 2019
- Kenyan Food
- food.com recipies
- Recipe ingredients dataset
- Eightportions Recipes dataset

4 Prior Art

We could not find a lot of work related to ingredients or recipe prediction. In most cases people are more drawn to food item classification problem, both because of non-availability of datasets and difficulty in annotating a new one. However, we did find this paper which does try to predict ingredients, but dataset it uses is not open source and thus might not be replicable.

5 Team

Both of us will be working on items with overlapping domains, but we will still try to parallelize this project as far as we can, to optimize timelines.

- ***Ashutosh Tiwari***
  Will be working on NLP side and integration with several other text sources to improve predictions.
- ***Khushboo Singh***
  Will be working on image processing and experimenting with different model architectures.

6 Schedule

We decided to divide project in four stages:

- Searching and figuring out availability of sane datasets. : **20 *October***
- Formulating and tweeking problem statement on basis of few small experiments : **30 *October***
- Outlining the solution architecture, different stages, contracts between different components : **14 *November***
- Trying out different image processing nets/architectures to figure out the best one : **30 *November***
- Concentrate on refining text predictions, improving same using different techniques (including/scraping more datasets : **14 *December***