

Recommending Dishes Across Cultures

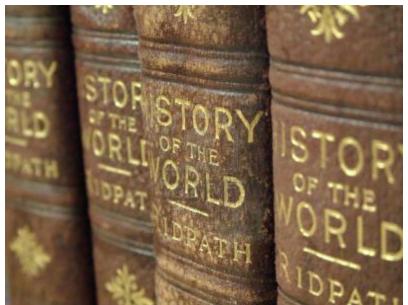
For New Culinary Adventures

Michael Li



METIS®

Why a Food Recommendation System?





34,000 Recipes on Epicurious.com

Dozens of Cuisines around the world

Create a **Recommendation System** using **Flavors**
and **Ingredients of Dishes**

Methodology





Data Gathering

30,000 Recipes:
Recipe Name, Ingredients,
Cuisine, Flavor Profile



yummly kaggle

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**Data Cleaning, NLP
Preprocessing, EDA**
(Vectorization, Stopwords,
Standardizing)





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Topic Modeling

Topics on Ingredients For
Filtering



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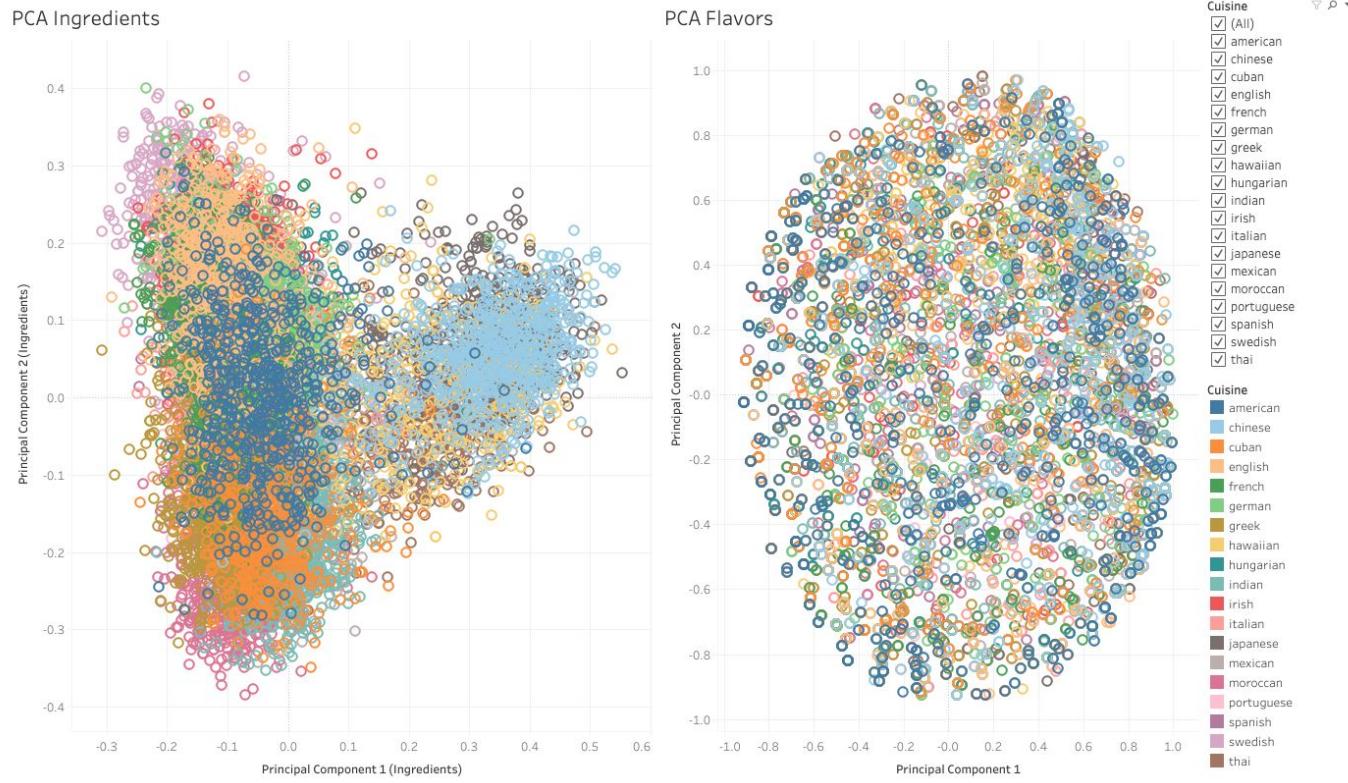
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EDA Findings



PCA Analysis: Ingredients and Flavors



Similar Cuisines: English and Irish



Irish Bangers and Mash



British Pork Potato Pie

Similar Ingredients and Flavor Profiles

Potatoes, Pork, Butter,
Onions, Thyme, Flour

Sour, Salty, and Meaty

Very Different Cuisines: Chinese and Greek



Chinese Pepper Steak



Greek Chicken Kebab

Different Ingredients BUT SAME Flavor Profiles

Beef vs Chicken

Soy Sauce vs Salt

Peppers vs Vegetables and Lemon

Bitter, Salty, and Meaty

Utilize Weighted Composite Distance

Flavors given **More Weight**

- Combinations exist across all cuisines
- Broader range of dishes

Ingredients given **less weight**

- Can be too cuisine specific
- Still important
 - Makes more similar recommendations

Topic Modeling Examples

Using CoRex, I generated **6 distinct food categories** for filtering dishes

- Seafood
- Meaty Dishes
- Dairy Focus
- Vegetable Centric/Salads
- Noodle/Rice Based
- Soups/Stews

Application Demo



Make a Selection



Salads Veggies



Noodles and Rice



Meaty



Seafood



Soups



Creamy/Cheesy

Make a Selection



Spanish Octopus



Seafood Fried Rice



Salmon Nigiri



Linguine with Clams



Grilled Lobster



Grilled Branzino

Make a Selection



South American



Asian



North American



Mediterranean



Middle Eastern/South Asian



European

Recommendation



Spanish Seafood Paella

Thank you

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New World To Old World

App User Experience:

- App user chooses Meaty Dish out of Categories
- Chooses New York Hot Dogs
- Finally selects European as Cuisine Selection
- Model gets good recommendations for most cuisines selected

App Returns Toad in the Hole (British Dish -- Sausages in Pudding Batter)



East to West

App User Experience:

- App user chooses Seafood out of first options
- Chooses Yanzhou Seafood Fried Rice
- App user finally selects Mediterranean as Cuisine Selection
- Model gets good recommendations for most cuisines selected

App Returns Spanish Seafood Paella

