



Chef's Special

**find the restaurant you
want to eat at**



Overview

- Problem
- Data
- Approach
- Results



Over 50k restaurants

1,300,000+ users

Where should one go?



Solution:

**Recommender
Systems**



Data

- Yelp Challenge
- Restaurants with more than 20 reviews
- Users that left over 15 restaurant reviews



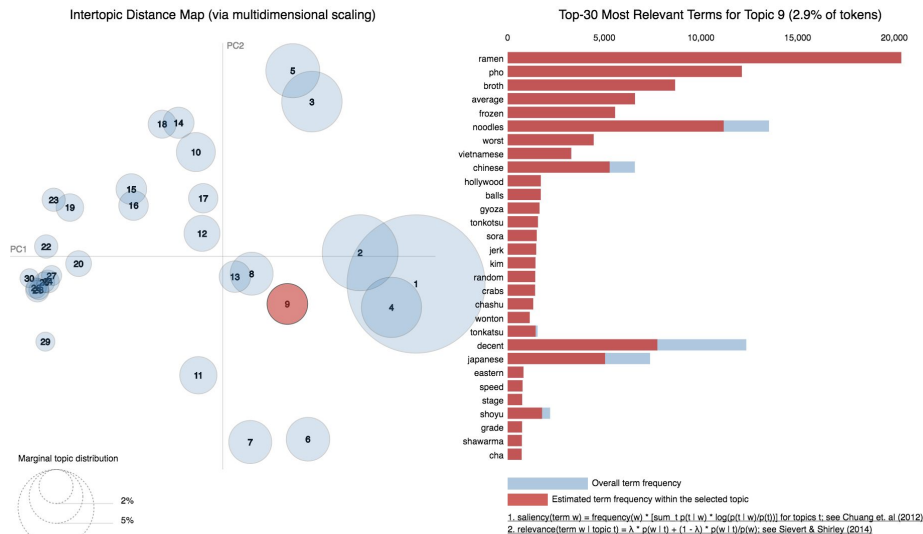
Model selection

- Baseline
- SVD
- KNN
- Random forest
- KNN with restaurant category

Enhancing the model



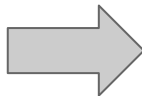
- Topic modeling with LDA to increase performance of the Singular Value Decomposition model



Topic modeling

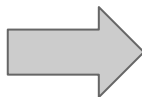


- Picking up on explicit items
ex. LDA Topic 14: Sushi

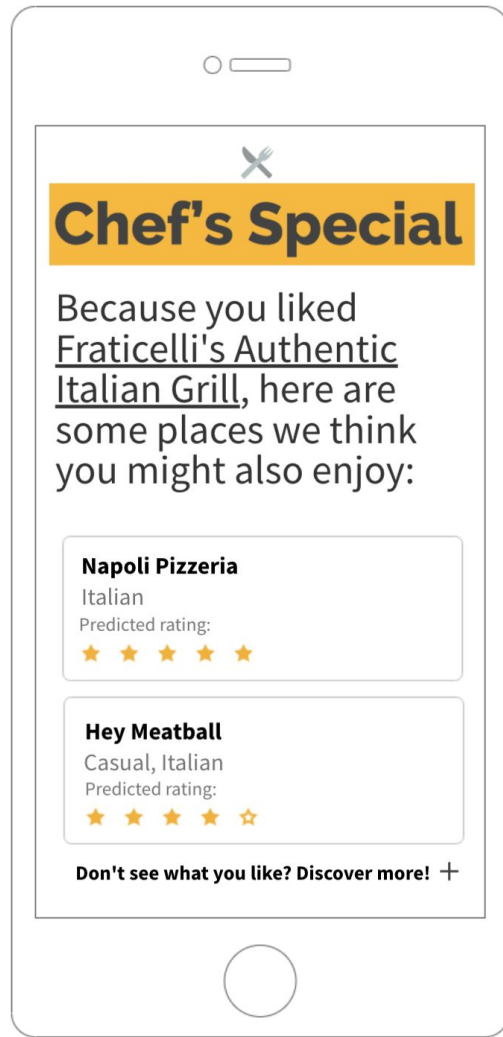


- Roll
- Salmon
- Fish
- Tuna
- Special
- Sashimi

- Inferential observations
ex. LDA Topic 6: "Ambiance"

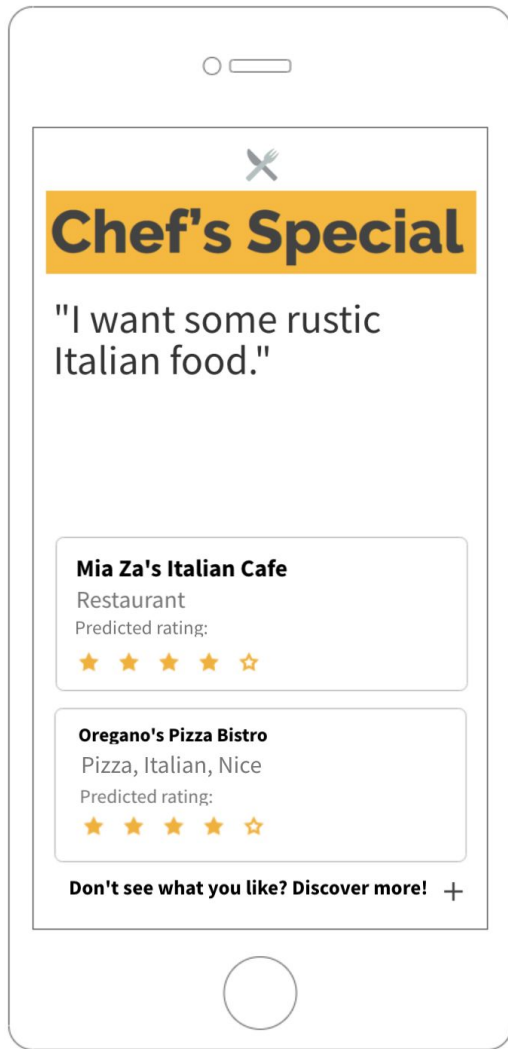


- Nice
- Best
- Great
- Service
- Amazing
- Cozy

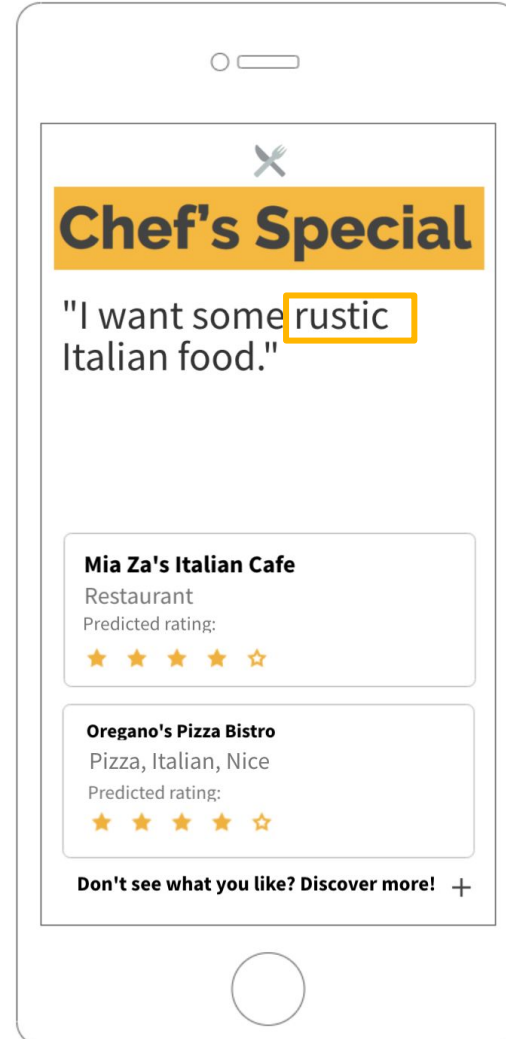
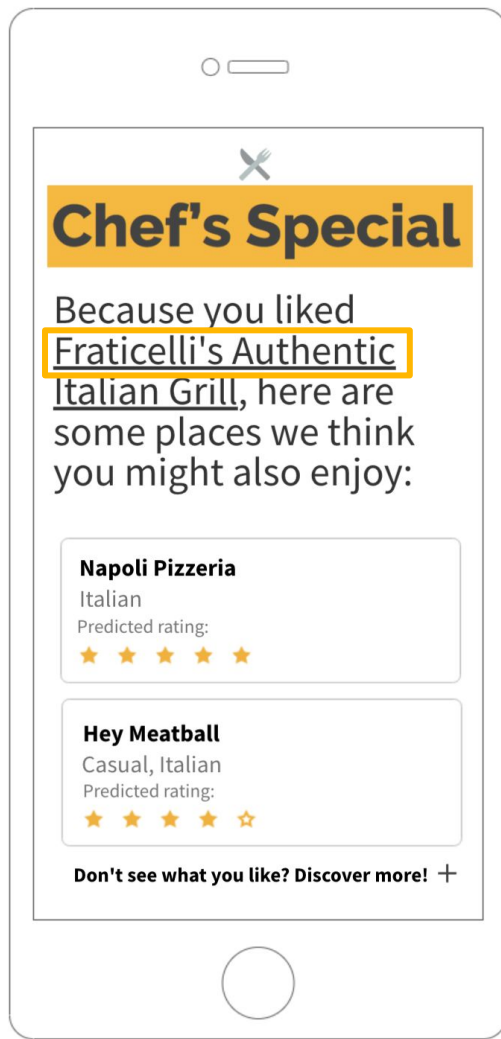


Collaborative





Collaborative + Topic Modeling





Next Steps

- Cold start problem: metadata + new user survey
- Interface for using the model

“

Thank you!

“



Iris Borkovsky



GitHub





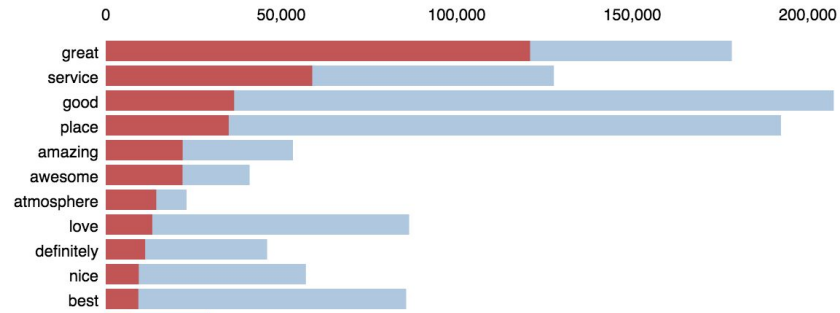
Appendix

Baseline

$$B = \mu + b_u + b_r$$

μ is the average rating of all restaurants by all users, b_u is the difference between μ and the user u 's average star ratings, and b_r is the difference between μ and the restaurant r 's average star ratings, and B is the predicted star rating from user u to restaurant r

Top-30 Most Relevant Terms for Topic 6 (3.3% of tokens)



Top-30 Most Relevant Terms for Topic 14 (1.7% of tokens)

