

# 2016 DC Michelin Star Restaurants Prediction

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# Study Design

- The goal: predict 2016 Michelin star restaurants in DC.
- What kind of training / testing data do we want:
- Balanced;
- Pre-filtered;
- As much as possible;
- Text data: unreliable or inconsistent

# Data Collection

- <http://www.chicagonow.com/chicago-food-snob/2013/12/chicagos-top-85-restaurants/>
- [https://www.timeout.com/newyork/en\\_US/paginate?page\\_number={}&pageId=35907&folder=&zone\\_id=1202678](https://www.timeout.com/newyork/en_US/paginate?page_number={}&pageId=35907&folder=&zone_id=1202678)
- <http://projects.sfchronicle.com/2016/top-100-restaurants/>
- <https://www.washingtonian.com/2016/02/08/100-very-best-restaurants/>
- <https://www.washingtonpost.com/news/going-out-guide/wp/2016/10/10/these-are-the-d-c-restaurants-that-insiders-predict-will-get-michelin-stars/>

# Data Collection

- Manually label stars to restaurants in NYC, SF and Chicago
- Manually add starred restaurants if not in the scraped list

# Data Collection

- Use Yelp API to request info as features:
- price, rating, category (cuisine), review counts
- Assumption: Michelin star restaurants have similar characteristics in terms of Yelp info

# Models

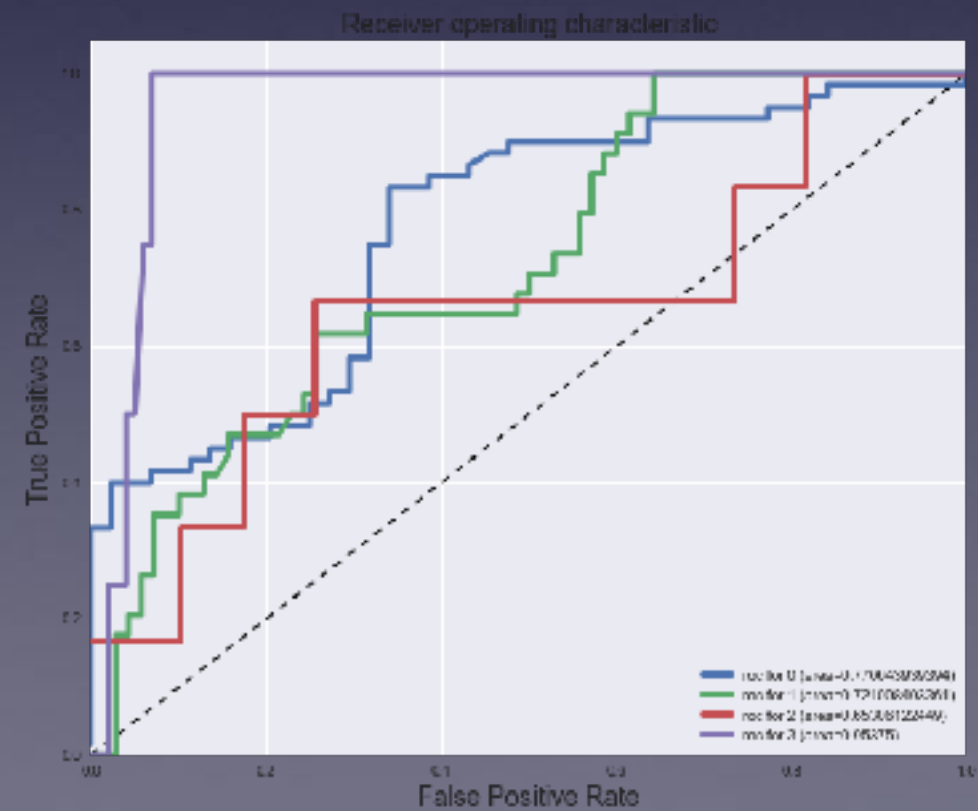
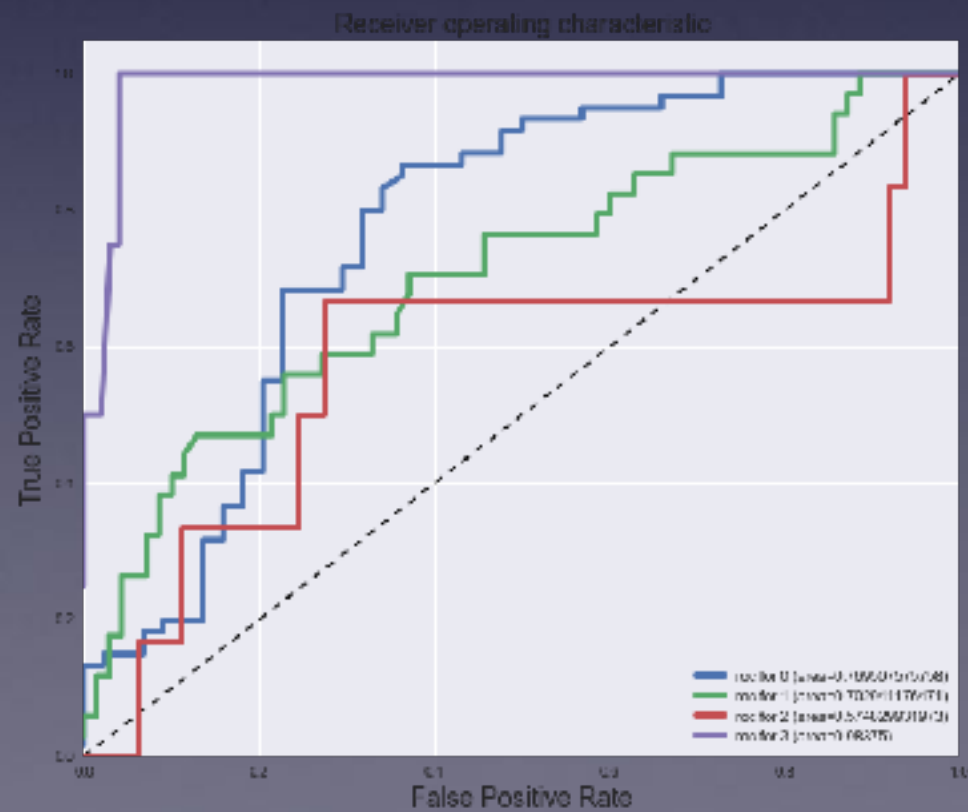
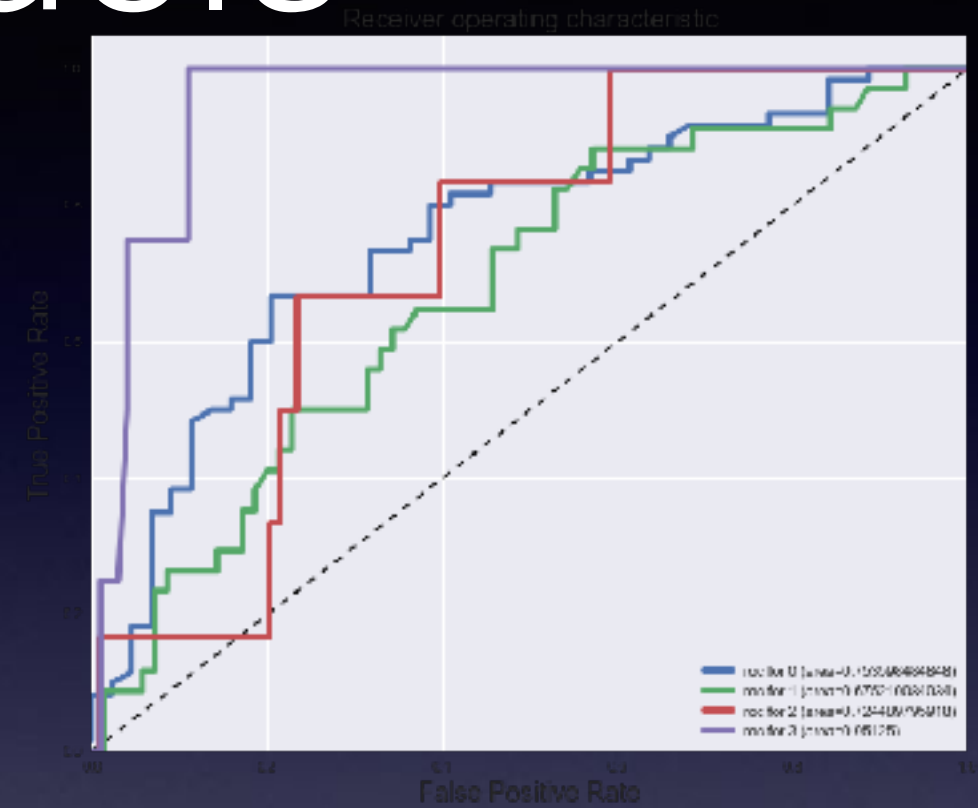
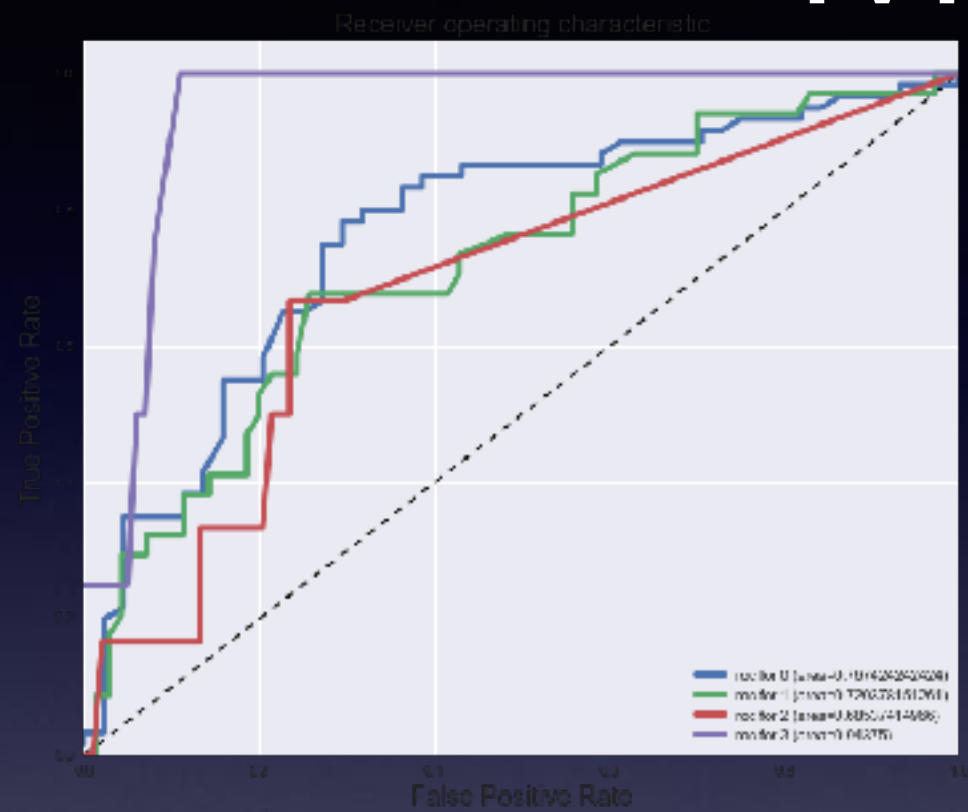
- Train test split
- Random Forest, Gradient Boosting, SVM, Neural Network
- Grid search to optimize F1-score
- Define a function to simulate scoring matrix of the competition

# Models

- Model performance on test set:
- RF: 0.35, GB: 0.33, SVM: 0.29, NN: 0.29
- Final list: majority vote



# Models



# Final List

Restaurant	Star
Komi	1
Plume	1
The Inn at Little Washington	1
Masseria	1
Marcel's	1
Minibar	1
Obelisk	1
Pineapple and Pearls	1
Metier	1
Kinship	1

# Conclusion

- Model performance is less reliable due to small dataset
- Use precise rating if given more time
- Adjust review counts with open time if given more time
- references:
- <http://fivethirtyeight.com/features/yelp-and-michelin-have-the-same-taste-in-new-york-restaurants/>
- <http://www.andyhayler.com/michelin-history>