

Who Will Win the 2020 Presidential Election?

Steven Dye January 23, 2020

Why is this important?

Seriously?

Data

- Collected from Census and Election Results
- 2012, 2016, 2018 Demographics
- Features of interest:
 - Age
 - Sex
 - Race
 - Education
 - Income

Method

Three Parties:

- Democratic
- Republican
- Third Party



Use previous elections data to predict next election

Predicted votes in each county

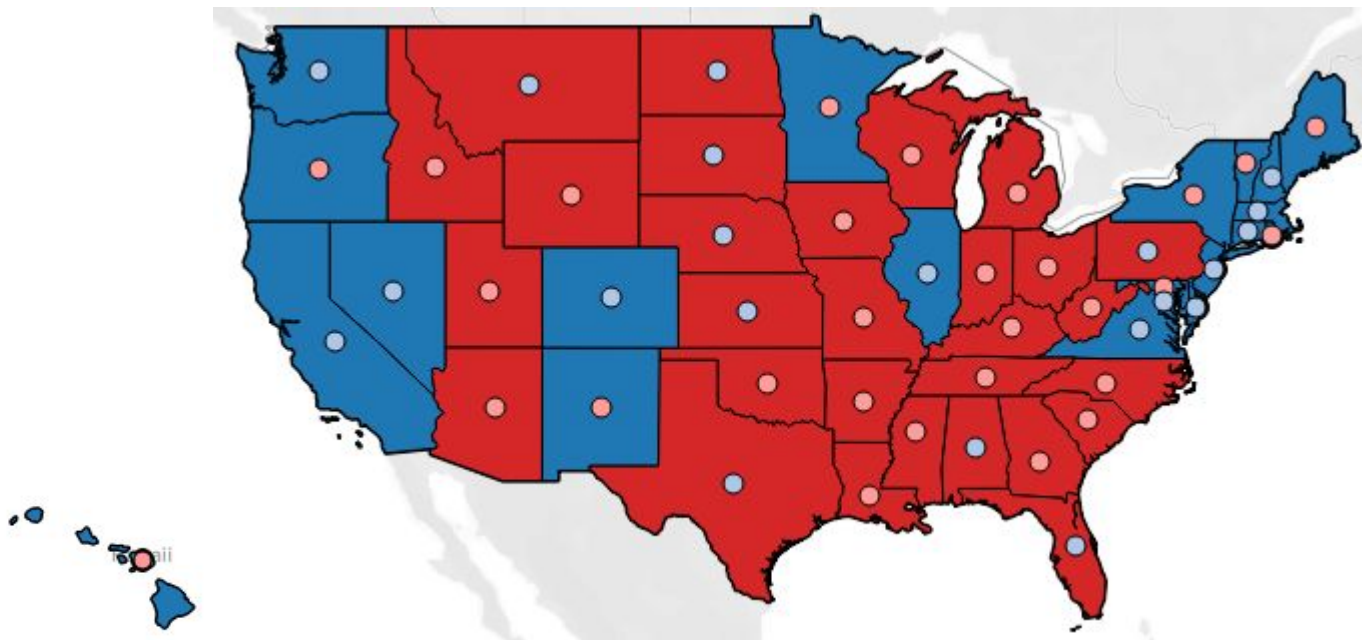
Add up votes in each state to determine winner

First to 270 Electoral votes wins!

County Results

County	Republican	Republican Predictions	Democrat	Democrat Predictions	Other	Other Predictions
Wilkes County, Georgia, 2016	2572	6570.0	1848	8850.0	66	-30.0
Colfax County, New Mexico, 2016	2585	6193.0	2129	9675.0	618	216.0
James City County, Virginia, 2016	21306	23796.0	19105	16100.0	2762	920.0
Middlesex County, Connecticut, 2016	38867	20862.0	45357	24172.0	4400	615.0
Breckinridge County, Kentucky, 2016	6484	8044.0	1960	9205.0	330	33.0
Cooke County, Texas, 2016	13181	21759.0	2352	9525.0	422	90.0
Hunterdon County, New Jersey, 2016	38712	22977.0	28898	33252.0	3226	8.0
Hamilton County, Illinois, 2016	3206	4968.0	802	8709.0	158	-153.0
Wilkin County, Minnesota, 2016	2129	8283.0	893	8527.0	280	-198.0
Armstrong County, Pennsylvania, 2016	23484	21946.0	7178	17272.0	956	2172.0

2016 Results



Election Breakdown

Actual

Party	Elections Won	Electoral Votes	Popular Vote
Democrat	21	227	65,853,514
Republican	30	304	62,984,828
Third	0	0	7,830,934

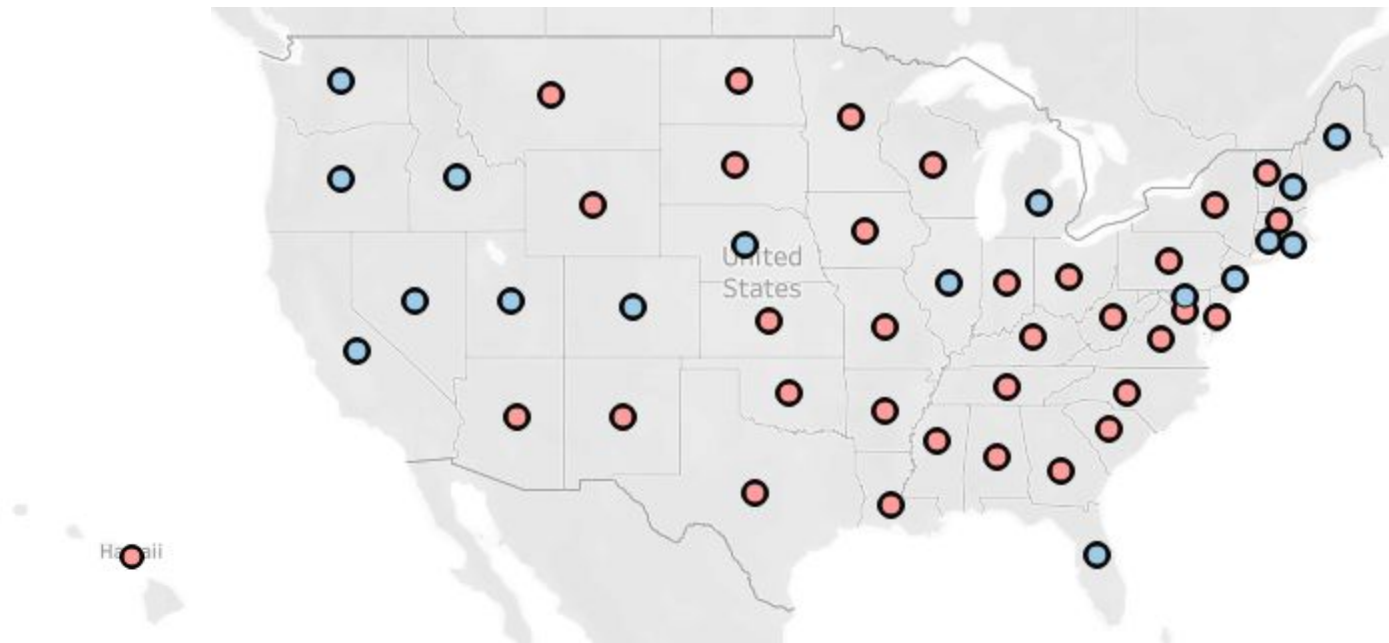
Predicted*

Party	Elections Won	Electoral Votes	Popular Vote
Democrat	21	250	65,758,561
Republican	29	285	62,456,193
Third	0	0	1,256,494

Model Analysis

- Predicted 31/50 states correctly
 - Over predicted Dem vote count by 21,501 votes
 - Under predicted Rep vote count by 365,248 votes
 - Under predicted Third vote count by 6,535,673
-
- Analysis does not include Alaska

2020 Predictions



2020 Prediction

Party	Elections Won	Electoral Votes	Popular Vote
Democrat	17	212	65,897,176
Republican	33	323	64,053,492
Third	0	0	7,517,179

Conclusion

Thank you and

GO VOTE!

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Future Work

- Error Analysis
 - Statistical and Systematic
- Fix Alaska!
 - Districts vs. Burroughs
- More Features
 - Population Density
 - Voting History
- Hierarchical Modeling

Appendix

About the Model

- XG Boost
 - Implements gradient boosted decision trees

Appendix

Demographics

