

# **Comparing Algorithms for Detecting Gerrymandering: An Investigation Into Bias In District Selection In Ensemble Map Generation**

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Gerrymandering is a pervasive issue in American politics and over the last decade mathematicians have made notable contributions towards its detection and avoidance. One focus of these efforts has been using computers to generate an ensemble of potential legislative maps and then comparing a real map against this distribution of maps. Vote counts from recent elections can then be plugged into both the real and simulated maps to understand whether the number of districts a given party wins under the real map is statistically likely under the distribution of generated maps. In other words, if one party wins far more seats than expected under the distribution of generated maps, it suggests that the real map is biased in favor of that party.