

**redistricting** is the process of drawing geographic regions for electoral or administrative purposes. there is a history in the usa of **abusing** redistricting to limit social, racial, ethnic, and political groups' power.

many have proposed "neutral" **algorithms** which draw nicely shaped districts subject to constraints like being connected and having equal population

**proponents argue** that because the algorithm doesn't take in racial, ethnic, political, economic, etc. data it **cannot be biased** in favor of or against any group

**opportunity districts** are ones that provide the **opportunity** for a community, which **votes cohesively**, to elect **their candidate of choice**

we compare four algorithmically-drawn state senate plans in alabama and michigan. **all four** have fewer **black opportunity districts** than the enacted plans and fewer than would be expected using a proportionality standard

preprint  
& poster  
available  
online



[tinyurl.com/algo-black-rep](https://tinyurl.com/algo-black-rep)

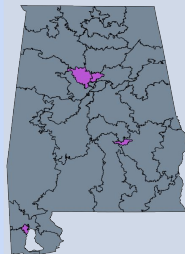
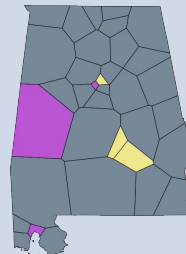
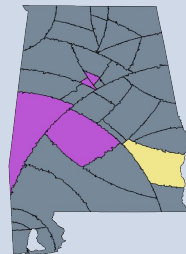
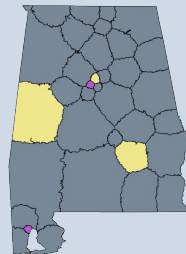
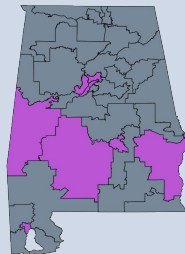
# algorithmic redistricting and black representation

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eaamo 2021

## alabama

27% black; 35 districts  
both rural & urban  
black pop.  
racially polarized vote



80  
enacted

23  
annealing

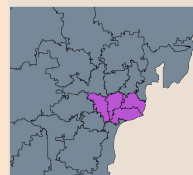
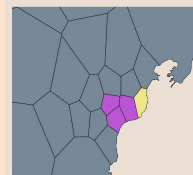
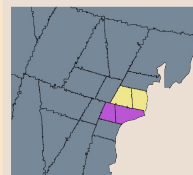
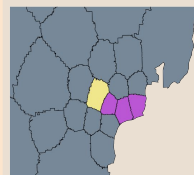
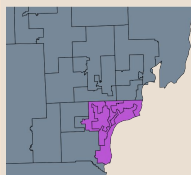
41  
arcs

33  
voronoi

40  
tree

## michigan

14% black; 38 districts  
black pop., mainly in  
detroit (shown)  
very racially polarized  
vote



enacted by  
state legs.,  
used in recent  
elections

iteratively  
assign blocks  
to improve  
compactness

recursively  
partition the  
state with  
circular arcs

find a  
balanced  
voronoi-like  
partition

recursively  
draw and clip  
spanning  
trees

the algorithmic plans  
have a **few districts**  
where black voters have  
**lots of influence** and  
**many others** where their  
strength is **diluted**

olson '09

levin & friedler '19

cohen-addad, klein, young '18

gerrychain '18