

# Looking to the Past to Visualize the Present: Revisiting W.E.B. Du Bois' Abolitionist Visualizations

Andrew Cunningham\*  
University of Massachusetts  
Amherst

Alyxander Burns†  
University of Massachusetts  
Amherst

Narges Mahyar‡  
University of Massachusetts  
Amherst

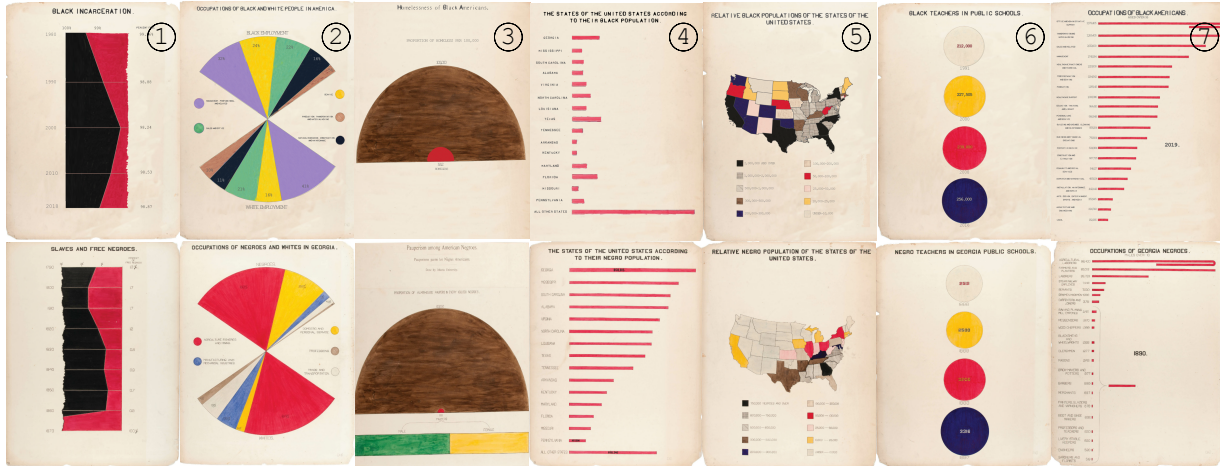


Figure 1: On top, we present modern replicas of seven of W.E.B. Du Bois's visualizations on the experience of being Black in America. On the bottom, we see Du Bois's original versions. By comparing charts made today and over 100 years ago, we see a vision of America that has made progress toward racial justice in some areas (e.g. more equitable employment), but not in others (e.g., overall incarceration rates and homelessness).

## ABSTRACT

Amidst growing civil unrest in the United States, we are seeing a new wave of abolitionist thought, which challenges us to look at systems of historic oppression and imagine how we can fundamentally restructure them to bring about an equitable justice. In this poster, we revisit visualizations made in 1900 by sociologist and civil rights activist, W.E.B. Du Bois to help us view the modern state of race in America through a historical abolitionist lens. The juxtaposition of stylistically similar charts made over 100 years apart reveals that while America has made progress toward racial justice in some areas, there is still work to be done. We call upon the visualization community to highlight the experiences of marginalized people and to take part in visualizing data related to the pervasiveness of racism.

**Index Terms:** Human-centered computing—Visualization—Visualization techniques—

## 1 INTRODUCTION

In 1900, less than 40 years after the end of slavery in the United States, a team of Black men led by W.E.B. Du Bois created some of the most powerful data visualizations we have yet to see [4]. In the Exposition des Nègres d'Amerique, presented at the World Fair in Paris, Du Bois displayed 63 data visualizations of census data that told an optimistic story about the ability of Black Americans to persevere and overcome strife despite the United States' long history of slavery [1, 4]. Unfortunately, more than 100 years after

emancipation, the system still has many barriers impeding racial justice. Where Du Bois' charts told a powerful story of rising prosperity, through the abolition of existing oppressive systems, revisiting Du Bois' charts could tell a very different story.

To compare current information to that shown by Du Bois in 1900, we recreated a selection of 7 charts. In this work we see 7 comparisons that give us a window into how race in the United States has changed over a century after Du Bois made his original charts. The comparison of our new charts with Du Bois' revealed that while America has made progress toward racial justice in some areas (e.g., more equitable employment), other areas lack such progress (e.g., homelessness and overall incarceration rates).

Our visualizations, shed light on still-existing axes of inequality in the US. Through this work, we intended to amplify the voices of modern abolitionists, while building upon the narrative of Black resilience that W.E.B. Du Bois displayed with his visualizations in 1900 [1]. We hope that our work sparks discussion among the data visualization community about the role of visualization in ongoing social equity issues and spark an interest in visualizing data that helps us understand racial segregation.

## 2 OUR VISUALIZATIONS

Sparked by recently captured cases of police brutality in the United States, there is increased public focus on the criminal justice abolition movement which originally formed, in part, in response to a long history of disparity in Black incarceration. Over a century after abolitionist W.E.B. Du Bois' team made their visualizations, we revisited those charts to see what has changed since the abolition of slavery and what echoes of slavery remain.

We identified five recurrent themes within Du Bois' original 63 plates: wealth, employment, education, geography, and incarceration. After grouping the visualizations by theme, we selected 1 to 2 plates from each category, based on the availability of the data,

\*e-mail: andrewjcunnin@gmail.com

†e-mail: alyxanderbur@cs.umass.edu

‡e-mail: nmahyar@cs.umass.edu

relevance to the modern-day, and ability to represent the category well. Figure 1 shows all seven pairs of our new visualizations as well as the original charts. To make a comparison between data of the original and new charts easier, we chose to imitate the style of the original visualization as much as possible and created the new charts with Adobe Illustrator and Photoshop to match the colors, fonts, and backgrounds. Our modern translations of Du Bois' work uses largely the same metrics that Du Bois used, with a few exceptions. First, Du Bois presented a visualization on "pauperism" (see Figure 1), which we translated to the homeless population (unfortunately, overlapping racial and gender data were not available). Second, we used incarceration data in place of data on slavery because of its modern-day abolitionist movement and because of its symbolism with respect to the 13th Amendment's forced prison labor clause. Finally, we were not able to find employment categories that exactly matched those of the original charts. We introduced new colors for those without historical comparisons as to not suggest spurious conclusions. All of our data was sourced through United States government-provided resources<sup>1</sup>, except for the data on homeless from the National Alliance to End Homelessness<sup>2</sup>. We captured as large of date ranges as possible, trying to reach back to where Du Bois left off, but much of the data before 1980 do not capture the metrics that we needed to consider.

Stacking our charts with Du Bois', we are confronted with a vision of America that has progressed in some ways, but also regressed in others. On the side of progress, Charts 2, 6, and 7 suggest less disparity in employment and more overall representation in academia for Black people. However, Chart 3 tells us that Black people are more often homeless now than they were paupers in 1900, and Chart 1 shows that while decreasing, the rates of incarceration among Black people is higher than it was even 40 years ago. Further, Chart 2 still shows that while 24% of Black people are employed in the service sector, only 16% of white people are, and that 41% of white people are in management vs 32% of Black people.

Geographically, Chart 4 suggests that there has been a dispersal of the Black population out of former slave states such as Georgia, Mississippi, and South Carolina. On the other hand, we still see remnants of 1900 in Chart 5, where Black people are largely still concentrated in the southeast, surrounding Georgia. Chart 6 shows us that the number of Black teachers in America has increased every 8 years, but without comparison to other demographics, it fails to show that this increase does not keep up with the growth of teachers as a whole. While Du Bois' counterparts had the opportunity to celebrate emancipation, our visualizations reveal that we may have not taken large enough steps to undo the harm that slavery and continued racial injustice has done to Black people in America.

### 3 DISCUSSION & FUTURE WORK

Comparing trends across the original and new charts reveal several relationships about what has happened in the century since the original charts were made. While we take the abolitionist view that systems like incarceration as a whole are symptoms of deeper systemic issues, we also recognize that looking at disparities within these systems can still be useful in diagnosing some of the underlying problems. Focusing, for example, on the rate of Black incarceration over the last 40 years presented in Chart 1 in Figure 1, the fact that the rate of incarceration is marginally *higher*, despite years of "reform" alerts us that our current trajectory may not be enough to undo the generations of oppression that our justice system is built on and that the systems in place must be fundamentally changed to achieve progress.

Visualizing large-scale data that show some of the effects of systemic racism on Black Americans' experience is only a sliver

of the work that can and needs to be done by the visualization community with respect to anti-racist work. Community-wide, we can apply the tenets of Critical Race Theory as outlined for human-computer interaction and answer the call to action posed in [6] which ask us (among other things) to recognize, study, and combat the pervasiveness of racism within our designs and systems; be "other-conscious" by considering how the work "might be received by groups other than ones' own;" and to be thoughtful in who is included in the research team when studying or working with a marginalized group. With respect to representation within the research team, this is one limitation of our work which we must recognize: none of the members of this research team are Black. As ideas in "data feminism" reminds us, data does not speak for itself but must be interpreted [3], and so, while we are able to interpret aspects of this work, there are likely nuances and interpretations which we cannot capture because we are not Black.

Two Black scholars whose work is related to that presented here are Yeshimabeit Milner and Joy Buolamwini. Yeshimabeit Milner, the founder of Data 4 Black Lives, takes an abolitionist approach to data, calling for big data to have its own abolition movement. In her talk "Abolish Big Data" she discusses the process of abolition and how the framework of thinking surrounding abolition is to challenge yourself to fully re-imagine a system [5]. The marginal progress made toward racial justice, as suggested by our visualizations, suggests too that a full re-imagining is needed. Joy Buolamwini, the founder of the Algorithmic Justice League, works in unpacking how a history of racism has contributed to racist algorithms. In her paper "Gender Shades," she uses her perspective as a Black woman to call attention to the experience of being both Black and a woman, interacting with a world of algorithms that have layers of built-in bias [2]. When we look at a visualization like Chart 5 of Figure 1 and see a map of the United States whose Black geography remains more-or-less the same as in 1900, it is easy to imagine the many ways in which our data might reflect other relics of the past.

We conclude with a call to action for visualization researchers to take part in visualizing data that highlights inequality and racism. We call on the community to recognize that the perspectives which give us critical insights on systemic problems come from those most disadvantaged by the system. This starts with actively seeking out, understanding, and amplifying work done by those with marginalized identities. By doing so, we can uncover powerful truths that can help guide positive change toward a just and equitable future.

### ACKNOWLEDGMENTS

We would like to thank Alberto Cairo for his valuable feedback on the visualizations, Ruha Benjamin for her inspirational work in confronting racism in technology, Data 4 Black Lives for mobilizing around data abolition, and all who dedicate themselves to the fight for social justice.

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<sup>1</sup>Bureau of Justice: [www.bjs.gov](http://www.bjs.gov); Bureau of Labor: [www.bls.gov](http://www.bls.gov); and United States census [www.census.gov](http://www.census.gov)

<sup>2</sup>[www.endhomelessness.org](http://www.endhomelessness.org)