

TOWARD A CRITICAL RACE ALGORITHMIC LITERACY

Preparing Black Youth to “Talk Back” to
Algorithmic Bias and Platformed Racism

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In 2021, Google released a ground-breaking report revealing that “Black Lives Matter” was the single most globally searched term in the history of the platform, even surpassing searches related to COVID-19 and the 2020 presidential election. The movement’s position at the top of the global search hierarchy is not altogether surprising, especially considering how adept Black youth have become at leveraging platform technology to raise awareness about, organize against, and collectively heal from systemic racism and anti-Black violence (Tanksley, 2016a, 2020, 2023, 2024; Carney, 2016; Olteanu et al., 2016). Not only are Black youth some of the most *frequent* users of digital and artificially intelligent technologies (Common Sense Media, 2024), but also they are arguably some of the most visible, vocal, and *impactful* users of these tools. Whether it’s regularly defining Twitter’s trending topics list (Brock, 2012), or repeatedly “breaking the internet” following high-profile Black cultural moments, Black youth’s ability to bend and break platform technologies to amplify their collective interests is not only indicative of their technological brilliance but also of their intuitive understanding of how to read—and repurpose—platform logics.

While it is tempting to characterize the creation of viral hashtags or global search trends as “low tech” and lacking a robust computational awareness, Black youth’s ongoing success with subverting algorithmic logics is proof of a rather sophisticated understanding of technological infrastructures (e.g., the code, data, and decision-making algorithms that quietly determine content moderation, post virality, and suggested content) and the role anti-Black racism plays in shaping those infrastructures. In fact, Black students’ growing awareness of algorithmic racism—and their subsequent

skill at resisting these systems—was on full display during the 2020 George Floyd protests. After generating several viral hashtags, including #Black-OutTuesday and #JusticeforGeorgeFloyd, youth organizers noticed that their posts were suddenly and inexplicably disappearing from real-time social media streams. Recognizing almost immediately how shadow bans, biased auto-complete features and the intentional misspelling of pro-Black hashtags by digital hate groups (e.g., #justuceforgeorgeflyod) were diverting and disrupting their attempts at collective organizing, Black youth hacktivists promptly began to “game the system” using algorithmic resistance.

While some youth shared information via instant messenger apps on how to identify and challenge cyber-attacks, enabling more youth activists to avoid censorship, others worked to dismantle various surveillance technologies that threatened the lives and well-being of BLM protesters. When youth protesters caught wind of iWatch Dallas, an application designed by Dallas police asking users to upload “evidence of criminal behavior” at the demonstrations, they leveraged subversive platform logic to overload the application with radical, anti-racist content, ultimately bringing the carceral platform to its knees. A cursory look at these subversive technology campaigns reveals young people’s rapidly developing repertoire of critical digital literacies that tether race, resistance and sociotechnical consciousness in order to “talk back” (hooks, 1986) and “bring wreck” (Pough, 2015) to anti-Black racism in digital technologies.

While it is important to highlight the ways Black youth are surviving platformed racism, it is equally important to interrogate the codified system of anti-Blackness that creates and sustains such a racially oppressive digital environment for Youth of Color. The permanence and pervasiveness of racism in platform technologies are undeniable, and studies show that constantly having to navigate anti-Black content, users, and infrastructures is racially traumatizing for Black youth (Tanksley, 2020; Tanksley & Hunter, 2024). Enduring some of the highest rates of digital harassment and algorithmic silencing to date (Lenhart et al., 2015; Madden et al., 2024; Rideout et al., 2010), Black youth are hyper-vulnerable to developing mental health issues, such as anxiety, depression, insomnia, and post-traumatic stress disorder, as a result of unchallenged systems of algorithmic oppression (McLeroy, 2022; Maxwell, 2016). In one study of race, wellness and platform activism, Black youth overwhelmingly reported feelings of exhaustion, fatigue and hopelessness when combating racist infrastructures. For these students, the perceived ubiquity and impermeability of anti-Black algorithmic racism was anxiety-inducing, and their inability to transform and dismantle this system was a salient

source of their emotional turmoil and racialized trauma (Tanksley & Hunter, 2024).

As the organizing logic and “default setting” of platform technologies (Benjamin, 2019), anti-Blackness can feel insurmountable—even to the most experienced social media user. This is because digital anti-Blackness is neither a “glitch” nor the result of individual “bad apple” users; rather, it is a highly organized and algorithmically supported matrix of domination designed to reinforce and further entrench White supremacy both on and offline (Noble, 2012, 2014, 2018a, 2018b). Thus, to truly transform interlocking systems of platformed racism, Youth of Color must develop a new type of digital literacy that allows them to “do more than survive” (Love, 2019) algorithmic racism; a digital literacy that would not only prepare them to navigate and interrogate racist technologies but also provide the critical computational knowledge needed to subvert, reimagine, and rebuild platform technologies in racially empowering ways.

In recognizing the centrality of anti-Blackness in digital and artificially intelligent technologies, and young people’s expressed desire to resist and transform algorithmic racism (Tanksley, 2024), this chapter poses the following questions:

- What cultural, historical and sociotechnical literacies do Youth of Color need to critically interrogate and transformatively resist platformed racism?
- What types of educational topics, activities, or experiences can help foster these sociotechnical literacies?
- How do Black youth leverage these techno-social literacies to dream up and design platform technologies in algorithmically and racially just ways?

In order to answer these questions, I draw upon a robust set of qualitative data drawn from two iterations of a critical race technology course that I designed and began teaching in the summer of 2020. Data for this study include semi-structured, one-hour interviews with roughly 25 Black and Afro-descendant high school students as well as course evaluations, field notes, and a content analysis of student design projects. Findings showcase how participation in the critical race technology course fostered a sociotechnical consciousness that enabled students to critically read, resist and ultimately reimagine platform technologies in race-centered and justice-oriented ways. It is at this critical intersection of *sociotechnical consciousness* and *sociotechnical freedom dreaming* that critical race algorithmic literacy begins to emerge.

Building a Critical Race Technology Course: From Theory to Praxis

In the summer of 2020, during the dual pandemic of COVID-19 and anti-Black racism, I designed a college-level course titled “Race, Resistance and Technology” aimed at fostering Black high school students’ critical awareness of anti-Black digital racism, algorithmic oppression, and technological resistance.

As an educator, my goals for the “Race, Resistance and Technology” course were threefold: (1) to document and validate the digital literacies that Black youth developed and deployed prior to taking the course; (2) to reinforce and extend these “homegrown” (hooks & Mesa-Bains, 2006) digital literacies by providing opportunities for students to critically interrogate anti-Black racism within a wide range of technological hardware, software, and infrastructures; and (3) to work collaboratively with young people to develop and operationalize race-conscious, justice-oriented and computationally robust literacies to dream up emancipatory tech that could heal rather than harm Communities of Color. As a research-practitioner, I was also committed to studying my own practice and using research memos and peer reviews to understand how my pedagogical and curricular decisions were impacting students’ ability to not only interrogate but also actively act upon algorithmic racism—a socio-technical consciousness that I have come to term “critical race algorithmic literacy.”

Course Design

A rigorous, systematic review of course material, including lesson plans, recorded lectures, reflexivity memos, and student work, revealed four pedagogical moves that helped foster critical race algorithmic literacy: *centering students homegrown algorithmic literacies; fostering sociotechnical consciousness; operationalizing a digital oppositional gaze; and engaging in abolitionist design and sociotechnical freedom dreaming*. Each stage of students’ CRAL development was supported by distinct pedagogical moves, curricular choices, and learning modalities (see Table 14.1), which I discuss in further detail below.

Centering Students’ Homegrown Algorithmic Literacies

In recognizing youth as holders and creators of knowledge (Delgado-Bernal, 1998), particularly as it relates to social media and digital technology use, I designed my course around the experiential knowledge and socio-technical funds of knowledge that Black youth develop beyond the classroom walls.

TABLE 14.1 Pedagogical Moves Associated With the Development of Critical Race Algorithmic Literacies

Centering Students' Homegrown Digital Literacies

<i>Pedagogical/curricular strategies</i>	<i>Definition/goal</i>	<i>Activities</i>	<i>Examples</i>
CENTERING STUDENTS' HOME-GROWN DIGITAL LITERACIES	These strategies focused on documenting and validating the digital literacies that Black youth developed and deployed prior to beginning the course. Students were explicitly positioned as digital media experts and asked to share their knowledge and experiences regularly in discussion and in the chat	Community introductions	Each students was asked to prepare an introductory slide introducing themselves, a piece of digital media content that brings them joy (e.g., memes, GIFs, TikTok videos, music videos) and what they are hoping to learn from the class
		Digital media survey	a Zoom poll about which platforms are the most popular/frequently used by students and which are the most racist
		Discussions	I was intentional about fostering robust in class discussions about technological racism, including shadow banning, content moderation, and digital blackface, both “out loud” and in the zoom chat
FOSTERING SOCIO-TECHNICAL CONSCIOUSNESS	These strategies focused on extending and bolstering students' homegrown digital literacies through exposure to new socio technical content, topics, and frameworks	Interactive class lectures	Here I covered topics like: the invention of the internet and its connection to White supremacists; the global communication infrastructure and its recreation of a digitized middle passage; content moderation protocols both automated and human; how technology extends racism in almost every institution, including education, real estate, financing, medicine, and beyond Students were encouraged to react to and comment on the topics in the chat in real time

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TABLE 14.1 (Continued)

<i>Centering Students' Homegrown Digital Literacies</i>			
<i>Pedagogical/curricular strategies</i>	<i>Definition/goal</i>	<i>Activities</i>	<i>Examples</i>
OPERATIONALIZING A "SOCIOTECHNI- CAL OPPOSITIONAL GAZE"	These strategies focused on providing students with ample opportunities to connect class topics to real life. These were chances to "talk back" and "bring wreck" to real-life iterations of sociotechnical racism	Weekly reading and reflection assignments	Students were assigned short reading assignments from cutting-edge scholars like Noble's <i>Algorithms of Oppression</i> , Benjamin's <i>Race After Technology</i> , and Gray's <i>Woke Gaming</i>
		Cyber Socials: "Reading" Pop Culture as Text	A range of popular culture products were examined, including Black Mirror, Ex Machina, the song "Dirty Computer" by Solange, and much more
		Guest speakers from STEM professions	We invited guest lectures who could give insight on the computational inner workings of platform technologies. During these guest lectures, students also had a chance to ask questions about platformed racism, and what these professionals were doing to address this pervasive issue

(Continued)

TABLE 14.1 (Continued)

Centering Students' Homegrown Digital Literacies

<i>Pedagogical/curricular strategies</i>	<i>Definition/goal</i>	<i>Activities</i>	<i>Examples</i>
		Testing and interrogating AI systems	Students leveraged their socio-technical consciousness to “expose” the logic trees of various AI technologies, like Moxie—an embodied AI robot—and Eliza—one of the first AI systems ever created. They were asked to have conversations with these agents to (a) figure out how, if at all, race and racism influenced their ability to have a conversation with students and (b) figure out what “rules” the AI system was following (e.g., if/then, word recognition) to host this conversation They also got to create a rudimentary AI agent using Google’s teachable machines and a newly designed mental health AI system, Cognimate
ABOLITIONIST DESIGN & SOCIO- TECHNICAL FREE- DOM DREAMING	These activities focused on leveraging sociotechnical consciousness to dream up and design algorithmically just and race conscious technologies	Critical race design projects & presentations	I was intentional about fostering robust in class discussions about technological racism, including shadowbanning, content moderation, and digital blackface, both “out loud” and in the Zoom chat

For instance, during the first class session, I asked students to complete a Zoom poll denoting their top three favorite (or most frequently used) social media platforms. I then asked them to list the top three social media apps where they encountered the most anti-Black racism. The students overwhelmingly identified globally popular social media applications, like Facebook, Instagram and TikTok, as “some of the most racist” platform technologies that they had encountered. This was a catalyst for robust discussions about common forms of platformed racism they experienced, including digital harassment, content flagging, shadow banning, viral videos of Black death and dying, and digital Black face.

These funds of knowledge were used to introduce new technological terminology that validated students’ everyday ways of knowing and surviving systemic racism. For instance, after introducing the technical definition of algorithms as “sets of rules, instructions or logical steps designed to solve a problem,” I asked students to analyze this formal definition in relation to the following quotes by Black scholars:

- “The problem of the Twenty First Century is the problem of the color-line”—W.E.B. DuBois
- “Black lives are still imperiled and devalued by a racial calculus and a political arithmetic that were entrenched centuries ago. This is the afterlife of slavery-skewed life chances, limited access to health and education, premature death, incarceration, and impoverishment”—Saidiya Hartman
- “In the United States, racism has always been numerical. The decision to make every Black life count as three-fifths of a person was embedded in the electoral college, an algorithm that continues to be the basis of our current democracy. Histories of redlining, segregation, voter disenfranchisement and state sanctioned violence have not disappeared, but have been codified”—Yeshi Milner

Here, students begin to recognize anti-blackness as an algorithm—or a set of instructive and punitive racial logics designed to “solve the problem” of Black life. Using DuBois’ provocative question, “how does it feel to be a problem?” as a point of entry, we then used if/then statements to identify real-life algorithms that foster Black Death, discipline and dehumanization within our everyday lives and schooling experiences. To begin this activity, I show students an image of an aisle marker from a Walmart in Southern California that displays the list of items found in that aisle: bleach, tortillas, international foods and laundry detergent (Figure 14.1, right). “What are the racial logics that undergird this aisle design?” I ask the class, and

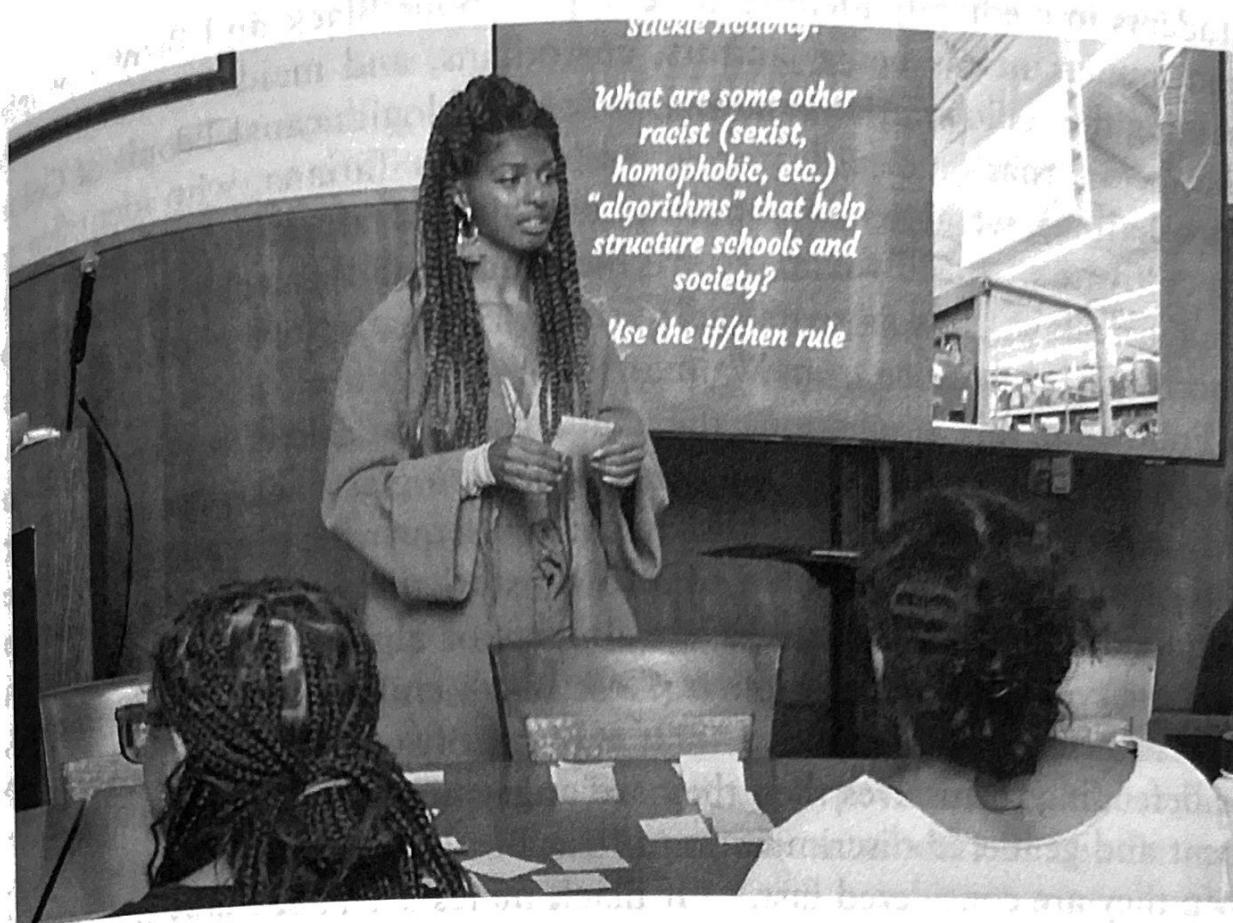


FIGURE 14.1 Example of sociopolitical algorithms (right) and using if/then statements to identify anti-Black ideologies (left)

students immediately identify stereotypes about Black and Brown people and immigrants as being janitors, custodians, and maids. In addition to naming the socioemotional harms these racial logics cause People of Color shoppers (“that’s a clear microaggression” says Tatiana, who identifies as Afro-Latina), we also talk about the racialized death and dying these logics cultivate (“isn’t it toxic to have bleach and all these chemicals next to your tortillas? How is that legal?” asks Jaslene, whose abuela regularly purchases her tortillas from Walmart).

Following this discussion, the students were asked to write if/then statements to identify the anti-black racial logics that permeated their lives and the material and discursive consequences that these “offline algorithms” have on Black and Brown students’ schooling experiences (Figure 14.1, left). Students gave examples of algorithms that resulted in hyper-surveillance and discipline (“If a Black child gets too loud in class, they deserve to be disciplined;” “If a Black/Brown person is standing up or defending themselves then they are angry and hostile”); sexual harassment and gendered discrimination (“If a Black girl dresses a certain way, then they are considered fast,” “If Black males aren’t sexually active (and vocal about it) then they are gay”); and low teacher expectations and reduced academic support (“If you talk in ebonics you’re illiterate”; “If you’re a Black student then you always need help; “If you’re Black on campus, you’re here because of a sport”). By anchoring students’ everyday experiences with anti-black racism to technological terms and computational concepts, the course prepared them to conduct analyses of platform logics and infrastructures in rigorous, interdisciplinary and culturally responsive ways.

Fostering Socio-technical Consciousness

Following these discussions, we began to explore literature that leveraged critical race theory and Black feminist thought to critically interrogate how and why anti-Black racism exists as the “default setting” (Benjamin, 2019) of digital technologies. Students read, annotated, and presented on cutting-edge scholarship in critical science technology studies, including

Algorithms of Oppression (Noble, 2018b), *Race After Technology* (Benjamin, 2019), *Woke Gaming* (Gray & Leonard, 2018), and more. The course regularly incorporated multimedia texts as a crucial dimension of fostering socio-technical consciousness as well, including popular films and television series (i.e., *Black Mirror*, *Ex Machina*, *Hidden Figures*), hit songs and music videos (i.e., “Dirty Computer” by Janelle Monae), and video games (i.e., *Grand Theft Auto*, *Hair Nah*). These texts were used to

help students understand how race and racism structure the sociotechnical world around us.

In addition to reading the sociotechnical world, students were also taught how to read technological hardware, software and infrastructures as text. For instance, following our discussion of anti-black stereotypes and analog algorithms, students conducted hands-on experiments with Google image search. Specifically, they searched for terms such as professional versus unprofessional, janitor versus surgeon, pretty versus ugly, and “straight A student” and “high school dropout,” and analyzed any patterns they noticed in the results. In our whole group debrief, students noticed how terms like pretty, professional, scholarly, and surgeon returned results of primarily White, cis-gendered, able-bodied people while terms like ghetto, ugly, unprofessional, drop out and janitor returned results that were predominantly Black and Brown. Students also noticed that representations of queer, trans, and disabled people were significantly underrepresented and, in some cases, non-existent. Then, they hypothesized whether these results were filtered by the most accurate, the most clicked on, the most profitable, or the most relevant result (or some combination of all four). Following this discussion, we used Google AdWords to understand profit differences between keyword combinations, and compared our results to findings from Noble’s groundbreaking study on Black girls, the porn industry, and commercialized search (2018b). By learning to read and interrogate a variety of sociotechnical “texts,” students gained a critical socio-technical awareness of how anti-Black platform racism creates, maintains, and proliferates intersectional oppression within and beyond the screen.

Importantly, I was very intentional about expanding our discussion of platform technologies and their anti-Black infrastructures beyond the user-tool relationships to rigorously consider the global, historical, and environmental context surrounding tech design, development and deconstruction. For example, students learned the etymology of the word robot (“robota”) which is Slavic for “slave,” and connected this to the history of Black enslavement and the subsequent premier of the first robot, called Rastus the Mechanical Robot/Negro/Slave. They also learned about the environmental costs of AI—including massive carbon emissions, energy usage, and depletion of freshwater sources (O’Brien, 2024)—and the disproportionate impacts these environmental costs have on Communities of Color (Ross, 2024). We also explore the invisible human labor behind technology, including the fact that OpenAI pays Kenyan laborers \$2 a day to clean the ChatGPT data corpus (Perrigo, 2023) and that prisoners are being used to train data (Meaker, 2023), and how these technologies

are wholly dependent upon laboring bodies that are coerced and caged. Finally, we explore the historical role that women, People of Color and other marginalized communities had on developing technologies—such as Black women being the first computers, Native women designing the layout of microchips, and Black computer scientists being some of the first developers of rudimentary AI.

Employing a Socio-Technical Oppositional Gaze

While the first two pedagogical moves focus on collective consciousness-raising through dialogue and communal knowledge construction (Collins, 1986), the subsequent moves focus on cultivating strategies for resistance and transformative change. Specifically, students were encouraged to develop and utilize an oppositional gaze (hooks, 1992) so that they could “talk back” to algorithmic racism in their everyday lives and schooling experiences. To do so, I provided students with real-life dilemmas featuring technological racism and algorithmic anti-blackness and asked them to interrogate and “fight back” against each dilemma using their burgeoning sociotechnical consciousness.

For instance, we discussed a viral social media moment where a young Black boy discovered that Google’s image recognition system (mis)identified his Black female friend as a gorilla. After reviewing his real-life tweets, we analyzed this phenomenon alongside Joy Buolamwini’s (2022) research comic detailing how image recognition systems become biased against Black women. Students used this reading and the real-world dilemma to list out all the ways anti-blackness could’ve become ‘baked in’ to the Google image recognition system, such as through programmers’ ideologies or skewed data sets. After sharing and discussing their lists, students used Teachable Machines (an image recognition and AI training platform) to curate their own race-conscious and justice-oriented data sets and (re)train the image recognition system to “see” Blackness. Several groups chose to curate data sets that “talked back” to biased results from their Google experiment, electing to code Black people with natural hair and darker skin as “professional” and people who are sleeping or eating at their desk as “unprofessional.” Another group chose to code “scholar” with images of Black youth that have tattoos, natural hair, and grillz—youth who were depicted in Google results for “thugs,” but who the students knew from personal experience were brilliant and resilient intellectuals. A third group chose to recode “pretty” to include people with disabilities, trans people, and darker skinned people—depictions they noted were absent in the original search results. For the final step of this experiment, students used their laptop cameras to test whether or not the newly trained AI image recognition

system could “see” Black people the way they saw themselves and helped peers: as beautiful, professional and scholarly.

In addition to developing students’ own capacity to ‘talk back’ to racial technologies, the course also provided opportunities to study how Black innovators, tech designers, and grassroots activists challenged algorithmic racism through the design and deployment of justice-oriented technologies. For instance, students researched Appolition, a crowdfunding application that uses automated spare change donations to pay bail for poverty-impacted People of Color, and BlackBird, a web browser that uses race-conscious machine learning algorithms to produce more culturally responsive search engine results for Black internet users. These and other justice-oriented technologies were introduced as a way to catalyze student’s ability to “freedom dream” (Kelley, 2002) in the digital age.

Socio-technical Freedom Dreaming

According to Kelley (2002), freedom dreaming is a tool of Black fugitivity and worldbuilding that invites Black people to first imagine, and subsequently design emancipatory worlds that can sustain Black life, joy, hope and healing. My articulation of critical race algorithmic literacies (CRAL) extends Kelley’s conceptualization of freedom dreaming to the digital, and I imagine *socio-technical* freedom dreaming as the process by which Black youth leverage counterhegemonic computational practices and socio-technical funds of knowledge to dream up abolitionist technologies that can foster transformative change in their lives and schooling experiences.

For instance, after examining the algorithmic innerworkings and design interfaces of justice-oriented technologies and comparing/contrasting them to mainstream technologies like Google search and Instagram, the youth worked collaboratively to “dream up” and design emancipatory tech systems that could work to heal rather than harm Communities of Color. This project occurred over the span of three 1.5 hour “design sessions” that occurred after school. During these sessions, students worked with five undergraduate program mentors and one graduate program coordinator to receive and integrate peer feedback on their projects. Guided by mentors, students worked in groups of four to five to design a technological innovation that could address a specific feature of anti-Black racism currently pervading Black communities. Each design group was given 10–15 minutes to present their inventions to the program faculty in what we called a “critical race technology showcase.” In the following section, I detail some of the students’ critical race technology projects, as well as their insights on the necessity and utility of critical race algorithmic literacy for Youth of Color in a platformed society.

Articulating the Power and Potentiality of Critical Race Algorithmic Literacy: Centering Students' Voices

Additionally, an analysis of the qualitative data, including formal student interviews, informal class discussions, zoom chat conversations, course evaluations and researcher field notes, revealed three major themes related to the purpose and power of critical race algorithmic literacy: (1) *CRAL enables students to critically "read" technologies as codified systems of white supremacy designed to reinforce and proliferate anti-Blackness on and offline*; (2) *By fostering students' ability to read the algorithmic "word," CRAL prepares students to critically interrogate, read and resist the algorithmic "world";* and (3) *CRAL enables students to move past identifying, interrogating and critically navigating racist technologies to actively designing and (re)building technologies in algorithmically and racially just ways.* The following sections will use student voices to detail each of the aforementioned features of CRAL.

1) *CRAL Enables Students to Critically "Read" Technologies and Make Sense of Experiences With Anti-Black Digital Racism*

A key feature of the course was fostering students' critical awareness of socio-technical infrastructures: what they are, how they work, and how anti-Black racism as the "default setting" shapes users' experiences on and offline. For a majority of students, the course content fostered a critical awareness of digital technology that irreversibly altered the way they understood and experienced technological racism in everyday settings. According to Melanie, the course content

changed the way that I look at everything now . . . now, when I see things, I feel I'm more conscious than I was before. I'm not all the way conscious yet because I'm still learning, but I feel I've improved as a person and I'm able to see things that I didn't see before like the [racist infrastructure of] the temperature scanner thing. If you had never taught me about that, I would have never thought anything of it.

Ayson felt similarly, noting,

You talked about how cameras, they look better for white people and Black people are drowned out and stuff like that. I didn't know any of that. I didn't really look at technology in that sort of way until you told me that. And it made me wake up and look at stuff and analyze how different other technologies did the same thing.

Importantly, students' newfound understanding of infrastructures helped them make sense of the technological racism that they experienced in their everyday life. Khadijah explains,

I think the most important factor was when you mentioned how when you put your hands under the dryer, it's meant to detect lighter skin. I was like, for all my years, I just thought it wouldn't work for me. And now it's like just little stuff I'm trying to pay attention to that I didn't think was a big deal before.

Malcom began connecting course content to his life outside of the classroom and used it to spread awareness about technological racism to his loved ones. He notes,

I was talking to my grandma and them yesterday about it when I was in the car, about technology being racist. I made them think, when you told us about how sometimes when we wave our hands over the sensor and it takes a few times for the water or the dryer to come on, or the paper towel to come out, so I really thought that was very effective. Because once I told them, they were like, 'Wait a minute.' Then they started to see like, 'Okay, it has to be true.'

In addition to helping students name and make sense of their experiences with technological racism, the course content also enabled students to identify and interrogate the sociotechnical structures that allowed anti-Blackness to persist unchallenged online. As Khadijah explains,

I never knew that the internet was made by white supremacists. I did not know that. But now. . . . I started noticing way more in my Google searches, and even the [social media] apps on my phone. I noticed when I started posting my Black Lives Matter content, my [story] views went from 200 to 50.

In this instance, Khadijah connects her newfound understanding of internet history—that members of the Ku Klux Klan were some of the earliest adopters of the Web and that the first iteration of the internet, called ARPANET, was created for military defense purposes—to her knowledge of platform infrastructures to make sense of the algorithmic censorship she experiences when discussing Black lives, rights and well-being.

Importantly, the course content helped students move past individual-level analyses of platformed racism that focused on racist users and digitally

mediated microaggressions, to more thoroughly examine how socio-technical infrastructures reinforced and exacerbated algorithmic anti-Blackness in systemic ways. Laurence captures this critical paradigm shift when he states,

I felt it was important when you showed us the [content moderation] slide show, just because I never really thought about how technology can have something to do with racism. I always just thought people would either, it's just something that people say or think, but I never think that they would use technology to express that. And it was just really eye-opening.

Marcus shared a similar realization following the machine learning session, noting,

You wouldn't think that technology can be biased because it's literally a computer, but then when you think deeper into it and you think about the people who are programming that technology and the people who are putting in those statistics and things and how those people can very much be biased and how that will then affect what the technology will present, it's really eye-opening.

Indeed, the perception of course as being “eye opening” was a prominent theme among students, suggesting an important connection between students' newfound ability to critically read the algorithmic word (i.e., algorithms, code, cookies, data) and their ability to more thoroughly “see” and critique the socio-technical world around them. Such connections inevitably led to a fervent desire to resist and disrupt platformed racism.

2) *By Fostering Students' Ability to Critically Read the Sociotechnical “Word,” CRAL Strengthens Students' Ability to Read and Resist the Algorithmic “World”*

Students in the “Race, Resistance, and Technology” course saw the liberatory potential of critical race algorithmic literacy, and how socio-technical consciousness could strengthen Black youth's ability to survive and resist codified racism online. For instance, Landon felt that developing a critical race consciousness about technology was important because,

The more you learn, the better you're equipped to fight the issues that you're facing. So if you're starting at a young age, learning about the racial divide within social media, or the racial divide within technology and access to technology, then you're better prepared and you're

prepared to make that change. You're educated enough, and you can educate other people to help make that change.

Raymond similarly captures the urgency of developing CRAL for the purpose of resistance, noting,

I definitely think [sociotechnical consciousness is] important because at the end of the day, A) most people are carrying a computer in their pocket daily, everywhere they go and B) technology keeps evolving and also stuff digitally, there could be so many subliminal things and things that create implicit bias and stuff like that, that we are not taught about regularly, that I think could be beneficial to navigating the world we live in today. I definitely think it's definitely important, definitely important.

While Raymond's comment captures CRAL's implications for resisting technological racism in *the present*, Laurence's rationale for developing a sociotechnical consciousness has implications for *the future*. He states,

I feel like every Black kid, no matter your age or where you come from, should know about this just so they won't think [technological racism] is a normal thing . . . so they know this is wrong and that they'll want to change it and stop this from happening to future generations.

This notion of futurity was a common theme among students, who consistently dared to dream beyond what is currently possible within algorithmic systems to invoke and lay claim to a future where Black people were free from technological racism. This sociotechnical freedom dreaming, made manifest through the cultivation of a critical sociotechnical consciousness, was further captured by Marcus, who connects CRAL to a speculative future where Black youth are not only leading, but transforming the field of STEM. He states,

[technological racism] is not something that you hear about at all. We're taught to just sort of accept technology as just this given that we can't change and it's just there and you sort of just have to deal with. But then once you start to learn deeper into it, it's just interesting . . . because we are the future, in a way. We are the future scientists and people in all of these STEM fields and everything, so we are the people who are going to be able to change that. You can't make a change unless you're educated on what needs to be changed, and so for that reason, I think that the past five weeks in the digital wellness course was super fruitful.

Similarly, Sterling states,

I think it's definitely important for Black youth to understand how technology is consistently oppressing People of Color. First of all, we must be aware of the things that try to suppress us and try to harm us. I think that's very important for Black youth to know that technology has not necessarily been on our side and, on the flip side, we could use our brains and our minds to think of solutions to fight the [technological racism] that exists.

The students' desire to dream up solutions to combat digital racism was a prevalent aspiration, and participants were eager to operationalize their critical awareness of platform racism to tangibly (re)design the sociotechnical world in racially empowering ways.

3) *CRAL Enables Students to Design and Dream Up New, Algorithmically Just Technologies as a Form of Transformational Resistance*

Students' development of socio-technical consciousness and their subsequent desire to design and implement algorithmically just tech was perhaps best captured in students' critical race technology projects. For instance, Group 1 conceptualized a racial affinity application called *Counterspace* that could serve as a safe space for Black youth looking for a reprieve from anti-Blackness and racial violence. As they explain in their presentation, *Counterspace* is "an online program for black students to connect with Black educators, professors, professionals and mentors." By leveraging both experiential knowledge and course insight about algorithmic racism, the students were able to propose a sophisticated content moderation plan that would protect, rather than harm, Black users (Figures 14.2 and 14.3). In explaining their robust layout, the students state:

We have our content moderation plan which just ensures that our app runs smoothly and it's used for good intentions and no one can get on and troll people and use this app to spread hate. So all interactions will be recorded and those will be reviewed by moderations, both digital and regular people. And then we have word/expression catchers. It's a system that flags words and phrases and it'll pop up and it'll say, 'were you offended by this word or phrase?' and everyone else in the group has the opportunity to say if they were. And if they were, it'll be taken

down. And all meetings and messages interactions will be password protected to make sure that only the people who are supposed to be in that interaction are there. And then we have user reporting and that allows users to flag conversations and puts it on a list for the moderations to go over and review much faster than they would with the regular review process.

“Our Content Moderation Plan”	
-	Recorded interviews – to be reviewed by content moderators both digital and people
-	Word/expression catchers – systems to flag [problematic content] by the community for sensitivity
-	All meetings and message interactions are password protected
-	User reporting – allows users to flag conversations and send them to moderators

FIGURE 14.2 Group 1’s content moderation plan as proposed in the final presentation for their Counterspace app

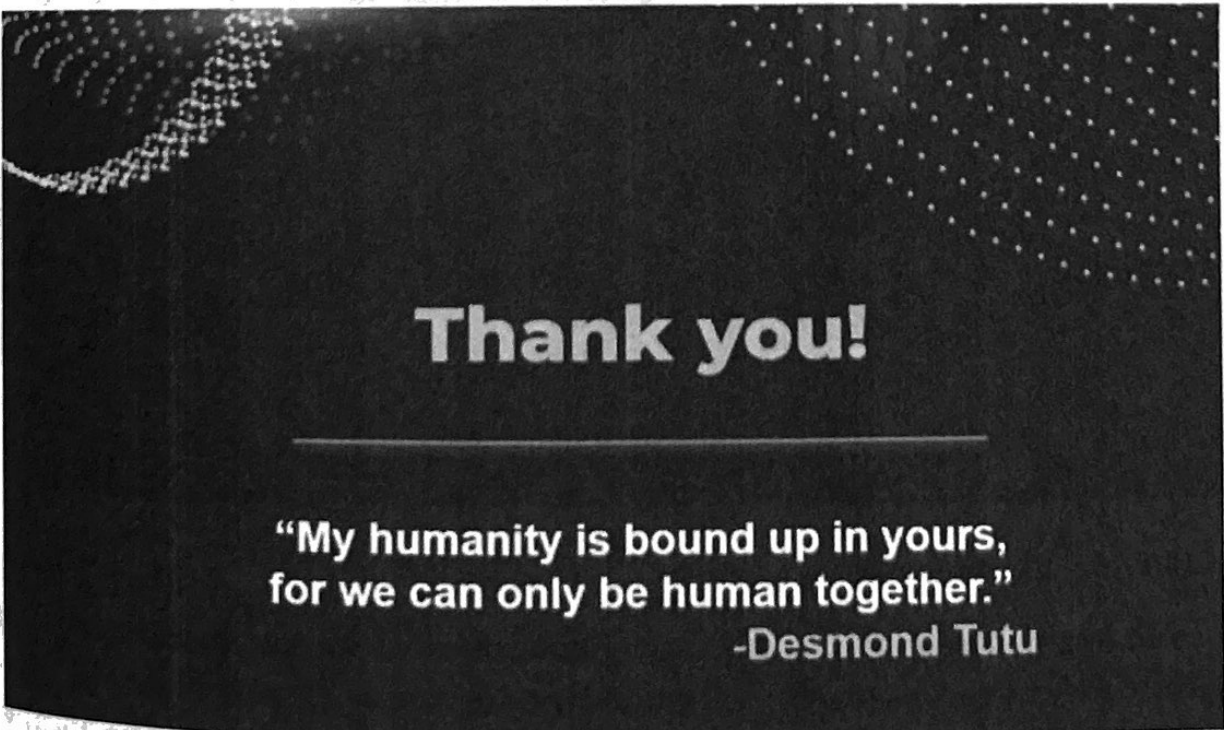


FIGURE 14.3 Group 2’s final presentation slides for their “Roots: A Connection to Home” app

**“A robot may not injure a
human being or, through
inaction, allow a human
being to come to harm
”**

—Asimov

Roots

Connection to
Home

FIGURE 14.3 (Continued)

In addition to conceptualizing sociotechnical protections to protect against digital racism, Group 1 simultaneously considered how their platform could address offline iterations of anti-Black violence. Specifically, they included a “hotline feature” that Black youth could access when they were in dangerous situations offline. The presenters explain,

We created 25225 as a hotline number which is associated with our platform specifically for Black youth to be able to text or call whenever they find themselves in danger . . . we created 25225 which spells out 'Black.' The hotline will solely be used to combat any form of violence including sexual and emotional violence which is an epidemic that targets Black youth.

Following the presentation, mentors and classmates gave insightful feedback and posed sophisticated questions about various features embedded in the app. For instance, Lianna complimented the robust nature of the content moderation procedures but shared her concerns regarding the racialized ramifications of recording all of the interactions on the app. She grounded this concern in our previous discussion on data diffusion centers, digital surveillance, and the disproportionate collection and sale of Black platform users' data to carceral entities, including law enforcement agencies. This comment generated a lively discussion about the implications of collecting data—what data are collected, where do they go, and who is able to access it—and both the discursive and material consequences of “data collection gone wrong.”

Likewise, Group 2 dreamt up a social media platform called “Roots: A Connection to Home” that could address the mental health consequences of anti-Black racism—both algorithmically and in real life (IRL). In discussing the pressing issue that this app is designed to face, the presenters explain:

Creating community for Black youth is of utmost importance especially when it comes to mental health in the Black community. It has been stigmatized that talking about your feelings is not for our people. We are trying to build a [platform] culture where it is more than okay. People tend to take their emotions out on people. Creating a healthy dynamic within the community addresses some of the scars of institutionalized racism. . . . Making an app like this connects people within our community and gives people an outlet.

Similar to the creators of *Counterspace*, the *Roots* innovators also believed that algorithmically just technologies could help address offline manifestations of anti-Black racism. After identifying racial violence and police brutality as two leading causes of mental health issues for the Black community, Group 2 decided to include a community watch feature that “shows police sightings in the area and allows people to share information about their neighborhood.”

Similar to the Counterspace app, the Roots platform was designed in a way that moved beyond helping users merely identify institutional racism; rather, they simultaneously enabled users to address and heal from its mental health effects. For instance, Group 2 conceptualized a “mental health AI” feature that could provide race-based support services to Youth of Color struggling with racialized trauma. In describing their “speaking AI” feature, Group 2 explains:

The main goal of the speaking AI is to help support Black people of common mental health issues that face the community, such as toxic masculinity, imposter syndrome, depression, and et cetera. The AI will be able to hold conversations with the user and give them further treatment or offer outside help for their problems.

Not surprisingly, an overwhelming majority of students identified the critical race technology project as “the most impactful lesson or activity from the course.” In the final course interview, Iliana reflects on the design challenge saying,

the final project really opened my eyes. Just trying to get the perspective of how people are thinking, what can we do, what can we create to help these problems. And just having that mindset and trying to actually create a technology or an app to help [technological racism] that was really fun!

Ayson felt similarly, stating, “the whole design challenge thing, that was dope because I was able to use my past experiences and what I learned in class . . . and apply it to the project.”

Importantly, students saw the design project as the first step toward a much larger goal: inventing and piloting an algorithmically and racially just social media application designed by and for the Black community.

Conclusion: Towards a Critical Race Algorithmic Literacy

In order to truly dismantle and rebuild algorithmically oppressive systems, Black youth must gain the sociotechnical consciousness and computational literacies that are necessary to reimagine, rewrite, and revise racist algorithms in ways that protect—rather than harm—minoritized communities. Freire’s (1985) ancestral knowledge grounds this assertion, asserting that People of Color must learn to “read the word” in order to “read the world.”

In the case of platformed racism and anti-Black digital technologies, critical race algorithmic literacy enables Black youth to read the *socio-technical word* (i.e., code, algorithms, data, content moderation protocols, machine learning models) so that they can read, resist and ultimately rewrite the sociotechnical world.

Similar to critical media literacy in general (Garcia et al., 2013; Morrell & Duncan-Andrade, 2005; Kellner & Share, 2007; Nichols, 2012) and critical race media literacy in particular (Yosso, 2002; Pérez Huber & Solorzano, 2015; Alemán & Alemán, 2016; Cho & Johnson, 2020), critical race algorithmic literacy recognizes that students are not passive users or consumers of digital media and technology, but instead regularly push against codified systems of White supremacy that manifest at the algorithmic level of everyday social media apps, websites, and digital platforms (Tanksley, 2024). CRAL recognizes that Students of Color bring a host of digital literacies with them to the classroom and positions these techno-social funds of knowledge as valid and indispensable to the learning process. Thus, CRAL showcases how students' "homegrown" digital literacies precede their reading of sociotechnical "word," and how the process of fostering students' critical race algorithmic literacies is dynamic and iterative. By situating students' experiences that occur at the user level (e.g., issues with the interface or other users) within a rich, sociotechnical context of algorithmic oppression, critical race algorithmic literacy further extends and augments students' homegrown literacies by denoting how platform architectures create, sustain and advance anti-Blackness in material and discursive ways.

In addition to fostering students' ability to critically read technological hardware, software and infrastructures as text, CRAL also works to strengthen students' ability to dream up and imagine race-conscious and justice-oriented platforms. In this way, CRAL is a precursor to critical race computational thinking (Tanksley, 2023) wherein students leverage their critical sociotechnical consciousness to design and deploy emancipatory technologies that can not only dismantle codified systems of anti-Blackness, but that offer new, justice-oriented systems in their place. This latter piece is crucial, and Benjamin (2019) reminds us that "calls for abolition are never simply about bringing harmful systems to an end, but also about envisioning new ones. After all, the etymology of 'abolition' includes Latin root words for 'destroy' ('abolere') and 'grow' ('olere')" (p. 162). In honoring the rhetorical duality of abolition, and connecting Love's call for abolitionist pedagogies (Love, 2019) to the digital realm, CRAL enables

students to “do more than survive” algorithm racism. It empowers them to resist, redesign and rebuild the sociotechnical world in transformative and life-sustaining ways.

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