An Ethical Lens to UVA Engineering Curriculum: How White Supremacy is Built-In through Normalized Deviance

A Research Paper submitted to the Department of Engineering and Society

Presented to The Faculty of the School of Engineering and Applied Science

University of Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science in Engineering Science

By

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Spring 2022

On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

White supremacy is the "social, economic, and political systems that collectively enable white people to maintain power over people of other races" (Merriam-Webster, n.d.). After the protests in response to George Floyd and Breonna Taylor's murders, universities, corporations, and leaders were called to be accountable for their role in perpetuating violent racism and the history of white supremacy in the United States. Engineers also responded to these events in the Journal on Engineering Education's October 2020 issue. Here, engineering professors — almost all from marginalized backgrounds— highlight how engineering curriculum and the discipline contribute to upholding white supremacy. The journal focuses on how the white male perspective has been centered in engineering education curriculum and pedagogy because of the influence of the industrial revolution, colonization, and capitalism (Kelly C., 2020). Since engineers are the designers of society, they have had a tremendous role in the physical manifestation of colonization. Engineers are major actors in this process because they displace communities, site pollutants in specific areas, and control who has input on designs and science. Without engineers' actions, the construction and process of colonization would be greatly scaled back. At institutions, like the University of Virginia (UVA), founded on principles of white supremacy, racism in design is further implicitly and explicitly enforced through its structures, legacies, and environments. In a local community approach, Students and Teachers Revolutionizing Inclusivity Values in Engineering (STRIVE) developed interventions that target the intersection of these oppressive systems at UVA.

Racism is endemic in our society because it was built into the structures and systems we occupy. This includes how we do research, apply those findings, and educate individuals on that knowledge. Western colonizers dehumanized BIPOC communities into objects that were considered 'wastelands'. Colonization occurred as the country violently expanded, occupied

territories, and designed the foundational structures of the nation. As prescribed by Traci Voyles in *Wastelanding: Legacies of Uranium Mining in Navajo Country*, "wastelanding" is "a racial and a spatial signifier that renders an environment and the bodies that inhabit it pollutable." Western colonization— with the spread of diseases, violence against communities, and the implementation of oppressive policies— of the Americas led to the genocide of nearly 5 million Indigenous people, destroying the spread of their cultures, knowledge, and innovations (Smith, 2017). These actions cemented racism, discrimination, and violence into the framework of the nation. Here, exploitation spurred western economic development which incentivized the innovation of technology and biased the methodologies behind their creation (Broich, 2007). Engineers were active players in this process because they physically manifest racial biases in their designs. While the disciplines often present their findings and work as impartial facts, science and engineering are not neutral. In fact, viewing science and engineering as neutral professions is a byproduct of white supremacy. This perspective ignores how structural racism influences power systems, technical analysis, and scientific applications (Mejia, 2021). Engineering was developed to assist in the creation of society. The foundation of the profession in oppressive structures cemented white supremacy into the profession and its training curriculums.

Today, the influence of the profession's foundation in white supremacy is still prevalent because engineering continues to be ais still a predominantly white and male profession in the United States (Data USA, 2020). This allows biases to remain unchecked and be included in technical work because of the lack of diversity (Shi, 2018). These demographics of the profession also shape the educational realm. Since engineers are predominately white and male, this trickles down to engineering professors, thus, limiting the perspectives in the classroom.

Representation in the classroom is critical to ensuring students see themselves as being able to succeed in the profession (Estrada, 2016). However, this representation is impossible at the current moment since engineering has been so strongly influenced by structures of white supremacy. As Aly Colón, the Chair in Journalism Ethics at Washington and Lee University, states, "ethics serves as the soil in which the seed of diversity must be planted" (Devonish-Mills, 2021). Engineering structures have supported unethical behaviors including discrimination and exclusion which has limited the ability of underrepresented and racially minoritized (URM) individuals to enter the profession. This failure in representation is directly connected to the countries' legacies of racism and sexism which often " does not view URM groups as the knowledge or thought leaders in STEM" because of biases on each identity (McGee, 2020). This limits the perspectives included in engineering work, biasing the process, and causing the designs to not be made for the betterment of the most possible people.

At the University of Virginia (UVA) and in the School of Engineering and Applied Sciences (SEAS), racism and sexism are built into the foundation of the school. Founded by Thomas Jefferson in 1817, the school was designed to only include southern white men (McInnis, M. D., & Nelson, L. P, 2019). Here, Jefferson formed a university where as the "Father" of UVA he could pass down his views for a segregated and slaveholding southern society to future students. Further, the school is built and operated on the stolen land of the Monacan Nation by the stolen labor of nearly 4,000 enslaved laborers (Indigenous/UVA relating, 2022)(Memorial to Enslaved Laborers, 2022). This foundation instilled white supremacy into the structure of the university which was repeatedly resistant to increasing any type of diversity. Further, it is not until 2006 that there are *any* institutional efforts to address these legacies of racism (Provence, 2017). The resistance to diversity efforts and the recency of acknowledgment

of this history has created an environment that still supports white supremacy through the school's investments, student engagements, representation, memorialization, and classrooms. Hopefully, through the work of diversity, equity, and inclusion (DEI) committees, the Dean of Diversity, and student initiatives like those discussed later on, the school can strive to create an anti-racist engineering program that denounces and recognizes legacies of white supremacy.

Normalizing Racism in Engineering and in Classrooms

Engineered systems have tremendous impacts on society and individual human lives and the impacts and effects are felt across a broad range of diverse populations. However, as Garrick Louis stated in their National Science Foundation proposal, "engineers are not trained to consider the diverse dimensions and impacts of their work. This has and continues to result in systems that benefit some while harming other members of society." Similar to engineering, higher education has been shaped by racism, colonization, and capitalism. The continuation of practices and teachings grounded in racism has been normalized in the functioning of these institutions and throughout the experiences of students. This is a form of normalized deviance. The normalization of deviance is "the process which deviance from correct or proper behavior becomes normalized in a culture" (Vaughan, 1996). Given the basis that proper behavior would include diversity, equity, and inclusion, the wide span of discriminatory experiences in engineering curriculum, let alone higher education, qualifies as a normalization of deviance. While these structures have been a part of the functioning of the university since its foundation, countless movements have declared that as a society discrimination is not justified. The perpetuation of these legacies in the face of moral opposition has normalized their deviance.

Institutions, like UVA, built by white supremacy have racism ingrained into their foundations and structures. Vaughan discusses how these systems contribute to normalized deviance when she states "the structure of power and the power of structure and culture – factors that are difficult to identify and untangle yet have a great impact on decision making in organizations" (Vaughan, 1996). At UVA, the structure of power has revolved around white supremacy. In engineering, whiteness, in disguise of meritocracy and blatant discrimination, has been framed as the benchmark. Joel Mejia discusses this in their research when analyzing how

Bonilla-Silva's theory on colorblind racism penetrates engineering curriculum and cements white supremacy in the experience. This framing explicitly looks at the flawed ideology of meritocracy in engineering. Meritocracy is the idea that one earns their position based on ability. However, in engineering, meritocracy may be repurposed as, or operate under the veil of, maintaining an environment of "healthy competition" or "being worthy of the profession" instead of being recognized as a way to leave unquestioned color-blind racist practices and perpetuate racist ideologies about what it means to be an engineer in the United States (Mejia , 2021). This framework highlights how white supremacy has been normalized within the structures of engineering education.

When in the classroom, URM engineering students frequently report discrimination throughout their educational and social experiences in their programs. This includes their interactions with professors, experiences with the curriculum, and treatment from peers (Collins et al., 2020). These experiences are rooted in the profession's development by white men and for white men. Here, researchers discuss the influence of racism, colonization, and white supremacy when they "succinctly characterize STEM as an instantiation of White institutional space: Such spaces are characterized by (1) the exclusion of those who are not from positions of power, (2) the developments of a white frame that organizes the logic of these institutions and normalizes white racial superiority, (3) the historical construction of a curricular model based on the thinking of white elites, (4) the assertion of knowledge and knowledge production as neutral and unconnected to power relations" (McGee, 2020). These characteristics are prevalent in engineering curricula and it creates a culture that discredits URM engineers and limits the perspectives included in research. To improve diversity in their programs, engineering schools must address these legacies of white supremacy by accountably acknowledging their

contributions, addressing the legacies in their curriculum, and emphasizing the importance of diversity, equity, and inclusion (DEI) in the discipline.

Universities must be accountable for the normalization of this deviance. At UVA, community groups and students have sought to design interventions that detract from this normalization of white supremacy. These interventions and the history of white supremacy at UVA are discussed below.

A Case Study: The University of Virginia

The University of Virginia opened in 1825 as the state charter university. Built by hundreds of enslaved laborers, white supremacy is ingrained in the institution since its founding. UVA was designed by Thomas Jefferson to educate the "Southern gentleman" and protect them from being "poisoned" by northern colleges', like Harvard's, federalist doctrines. UVA attracted students from powerful and influential Southern families. These families sent their sons to UVA in the 19th and early 20th centuries because of the university's dedication to cementing the Southern "way of life" into the country's social and political frameworks (McInnis, M. D., & Nelson, L. P, 2019). This "way of life" specifically included slavery, segregation, and white supremacy. Jefferson's intentions with the university have shaped the school throughout its history. In support of Jefferson's goals, in the past century, university administrators supported eugenics and segregation policies and delayed the process of coeducation (Reynolds, 2021). All of these components create a culture of white supremacy which has been normalized into the experiences of students. This legacy, UVA's existence as a predominately white institution (PWI), and the white male perspective throughout engineering create a harmful environment for URM students in SEAS.

In 1950, Gregory Swanson desegregated UVA's law school by force through a lawsuit. Swanson's entrance to the university marked the start of a time period of trailblazers who incrementally desegregated UVA. This was an extensive process and one that was stalled by administrators and university supporters. Instead of desegregating all educational programs in 1950, the university operated on a case-by-case basis and only desegregated professional school programs for which there were no equivalents at the historically Black colleges and universities (HBCUs). It was not until 1955— a year after the Brown v Board of Education supreme court

case ruled that “separate but equal was not equal” — that the undergraduate school was desegregated (Warren, 1953). In 1955, Robert Bland, George Harris, and Theodore Thomas desegregated the SEAS (Slater, 1996). Still, here, the university continued to try to segregate classes by only desegregating its specialty programs and not the College of Arts and Sciences. It is not until 1960 when former chemical engineering student A. Leroy Willis transferred into the chemistry major in the College of Arts and Sciences that the school was finally desegregated (Dillard, 2012). As Black students matriculated UVA, a generation of institution builders fought to create a more equitable university. This activism continues and many of the demands made by this generation are still being made by students today (Black Student Alliance, 2020).

The recency of this history and UVA’s legacy of white supremacy is highlighted by the violent ‘Unite the Right Rally’ on August 11th and 12th 2017 (Sganga, 2021). Then, two UVA alumni marched down the University’s lawn in an act of domestic terrorism and circled the Thomas Jefferson statue on the northside of the Rotunda while they protested the removal of a Robert E Lee statue in downtown Charlottesville because they believed they were fulfilling Jefferson’s intentions for society. These intentions include memorializing slaveholding society, honoring members of the Confederacy, and supporting segregation policies. While not directly correlated, the matriculation of alumni who fervently support racism and who believe they are fulfilling Jefferson’s intentions for UVA students emphasizes how white supremacy and racism is intertwined into Jefferson and UVA’s legacies. Jefferson has been idolized at UVA, in surrounding his statue organizers of the ‘Unite the Right Rally’ are signaling that they are embodying and continuing Jefferson, and thus, UVA’s, goals to create a society that bolsters and supports white dominance.

At UVA, Jefferson's vision on race, gender, and the value of each, impacted and continues to impact the process of diversifying the student body. When designing the university, Jefferson only considered white male students for attendance. In 1898, the university Board of Visitors (BOV) expanded on Jefferson's "lack of contemplation for female education" and declared that higher education would "unsex women " (McInnis, M. D., & Nelson, L. P, 2019). This decision was influenced by the university's eugenics research because administrators believed that educating white women, the only women at this time considered for coeducation, would lower birth rates and thus allow Black populations to increase in comparison (Preston R., 2017). The Board of Visitors' decision dramatically delayed the process of coeducation and cemented gender biases throughout the school. When investigating the experiences of URM students in SEAS, specifically women of color, this resistance to coeducation becomes particularly relevant. UVA was the last non-military public university to coeducate its undergraduate classrooms. In 1970, the university had its first-year of undergraduate coeducation. These women experienced vast amounts of discrimination socially and in classrooms. Students reported professors ignoring them in classes, male students stomping their feet as women spoke up in class, and having to face biases that they were not qualified to be at UVA. When investigating the coeducation of the SEAS, university archives unveil, that it is not until 1981 that the first Black women graduate from SEAS. It is these legacies on both race and gender that shape URM students' experiences at UVA because this school was explicitly built in opposition to their identities.

In the engineering school, classes except STS 1500 and STS 3500 on "Matters of Race in Technology and Society" largely ignore the influence of racism in the profession and are detrimental to the experiences of URM students in the predominantly white and male spaces. For

context into the demographics of SEAS, school-wide women account for 33% percent of students and underrepresented minorities account for 11.47% percent of students (ESE UVA, 2020). While the School of Engineering and Applied Sciences (SEAS) does advertise a focus on justice and diversity through engineering, the school fails to center equity (UVA Engineering). Centering equity requires social and curricular changes which deemphasize the authority of the dominant male and western perspective and welcome perspectives from URM individuals. Further, it also fosters an environment where students and professors learn from their unique experiences and expertise. This co-learning breaks generational social differences while creating an environment of accountability and respect for all parties. Theoretically, SEAS tries to address UVA's history of racism in the engineering school's required course STS 1500; however, the curriculum and discussions fail to address the relevance and necessity of understanding how engineers and racism are interconnected. It is also frequently reported by students that the professors are not trained to handle conversations on race and racism, which creates a harmful classroom environment. SEAS must prioritize equity as a core value throughout the engineering school to become an anti-racist program that trains ethical engineers.

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STRIVE Analysis

SEAS URM students' experiences are shaped by UVA and the profession's history of racism and white supremacy. These legacies actively normalize biases in the SEAS' educational experience. To quantify the influence of this legacy on students at UVA today, a student group — Students and Teachers Revolutionizing Inclusivity Values in Engineering (STRIVE) — designed multiple interventions to educate and then survey students on the legacies of white supremacy at UVA (Appendix A). These interventions follow a short-, mid-, and long-term strategy that was designed to combat the cyclical nature of demands at UVA because of student self-governance. Student self-governance means students take the lead on initiatives which allows administrators to defer some responsibility in addressing oppressive structures. Further, since students graduate every four years, can become a burnout, or projects are delayed due to coursework or administrative logistics, projects and demands are frequently delayed and unmet (Black Student Alliance, 2020). The experiences of students during STRIVE's interventions and their views on the positionality of engineers is measured in STRIVE's surveys and highlight legacies of white supremacy at UVA and in engineering. Further, STRIVE's work emphasized care ethics, duty ethics, virtue ethics, and utilitarianism in their design of interventions. Focusing on accountability, responding to community concerns, highlighting ignored and silenced voices, and emphasizing duties and responsibilities to each other.

As a part of a community initiative to address diversity, equity, and inclusion in the engineering school STRIVE designed multiple educational initiatives on UVA and engineering's contributions to white supremacy. These interventions include the mandatory first-year History of Enslaved African American Laborers (HEAAL) tour, research into the first Black women in the engineering school, and the design of educational slides teaching about the legacies of racism

and white supremacy in engineering and at UVA. All of these programs seek to educate engineering students on the recency and perpetuation of racism at UVA and to push them to consider what this context means for their positionality as an engineer.

STRIVE designed the educational slides with three goals in mind: to educate UVA engineering students on the history of the school, to call attention to the influence of racism in engineering designs and products, and to highlight alumni success stories from URM students. The slides were designed to be implemented in a similar fashion to the Engineering Systems and the Environment department program that includes an informational slide about resources and opportunities in each lecture. These slides inform students about resources provided by the school like the food pantry, tutoring services, and counseling services. Here, STRIVE designed the slides to normalize learning about topics concerning race, social justice, and history in engineering classrooms. Normalizing these topics emphasizes that these are vital skills to have in order to understand the larger implications and impacts of engineering designs. This initiative aims to target the failures that Garrick Louis highlighted in his National Science Foundation Grant when he stated "engineers are not trained to understand the diverse implications of their work." By including these slides in every class, the SEAS could target engineers' deficits in these areas which would train engineering students to actively consider the implications of their work in every setting.

In relation to the HEAAL tour program, this initiative was formed very specifically to emphasize the school's legacies of slavery, white supremacy, and activism which differs from the traditional 'History of African American' tour engineering students previously attended. This tour was created in a manner that improved engagement, opened up discussions, and called on students to progress current activism. Previous historical tours that engineering students went on

lacked intention in the design and creation of the tour. STRIVE has multiple members who are a part of the University Guides' Service, including their Community Education Chair, who gives historical tours and understands the variance of material depending on the tour guide. In designing the tours, this was a concern for coordinating groups including HEAAL (History of Enslaved African American Laborers) and the Descendants of Enslaved Laborers because all parties wanted to ensure all students attended a similar experience that represented the violence and harm enacted by the UVA, legacies that, until recently, have been largely ignored by the school. Here, STRIVE coordinated with partners and created an outline for tour guides that explicitly discussed the legacies of white supremacy at UVA, the hesitancy of administrators to acknowledge this past, and the activism of URM students who have fought to make the school more equitable. From observation of the tours and discussions with first-years, being this explicit on the tour about these legacies caused students to reassess their positionality at UVA and called students to be a part of change— like the tour they were on— that addresses the history of white supremacy and its impacts on the greater community.

Logistically, STRIVE attempted to create the most engaging and impactful experience possible. Engagement on the tour and with the program was a primary concern because of previous experiences with the STS 1500 History of African American tours. Based on the experiences of tour guides, students were usually not engaged and were distracted during the tour. This is due to the large group sizes and lack of a central goal and focuses on the tour. On the tours, students could easily not pay attention on the tour because of the large group sizes — tours exceeding over 50 students. This allowed for distractions to occur, students to talk at the back of the tour group, and made it difficult in smaller locations to share the history of the space. In designing the HEAAL tour, STRIVE capped the tour group size to 25 students which made

the tour much more accessible and engaging. STRIVE addressed the lack of focus on tours in coordination with the requests of HEAAL and the Descendants' community by creating an outline that specifically discussed slavery, white supremacy, and activism at UVA. By ensuring these themes throughout each stop on the tour students were able to more easily follow the progression of history and connect analysis to their present-day experiences on grounds.

Further, STRIVE wanted to ensure students felt comfortable on the tour, were engaged, and could discuss this information with their peers. To achieve this, STRIVE scheduled all tours through Housing and Residential Life (HRL). Here, each UVA association had a designated week to attend the tour. Each association was grouped together by their area on grounds so that once students left the tour they could discuss the experience with their peers they lived near. By coordinating tours through HRL, STRIVE capitalized off of the relationships residents advisors have with their halls of students and incentivized halls coming together to create a comfortable and welcoming experience where students could learn about white supremacy at UVA. Combined, these logistical focuses created a program that prioritized engaged learning and welcomed students into the experience.

To measure the impact of the HEAAL tours, STRIVE surveyed engineering students on their experiences on the tour, their perceptions of qualities that are necessary for engineering, and their experiences with diversity in SEAS. The survey includes questions that use a Likert scale — ranging from strongly disagree to strongly agree— and qualitative short text options. There are currently not enough survey responses to provide statistical confidence; however, from observations of the tours, discussions with participants, and responses on the impacts of the program, the HEAAL tours did increase students' understanding and awareness of engineering and UVA's history of white supremacy. One student remarked specifically that the tour "opened

[their] eyes to the ways in which technology can be oppressive and harmful to those it targets and emphasized the importance of designing with not only the majority in mind." Students also "gained an understanding of the power of engineering to do bad and good and how the profession is political and social in its impacts." Another student expanded this conversation on positionality when they reflected that the "tour made [them] realize that we engineers are privileged to go to get an education [at UVA] and should be knowledgable on the history of whit supremacy." Further, students discussed the tour's goal of being a call for future activism when they stated that the tour "reminded [them] of how much this world still has to improve in every capacity and engineering is one of the capacities [they] can contribute to." Overall, the majority of respondents and participants in discussions strongly agree that the tour was a valuable addition to their understanding of UVA and that the history of UVA has directly impacted the university as it is today.

Suggestions for Administrators

The SEAS must take direct actions in acknowledging and addressing the legacies and continued reliance on structures of white supremacy. After the murder of George Floyd, community members, graduate students, and undergraduate students pushed the school to prioritize DEI initiatives and goals in the SEAS (Black Community, 2020). SEAS responded to these calls by hiring a Dean for Diversity, Equity and Inclusion, through departments creating their own DEI committees and goals, and the creation of the directors of DEI. While this is progress, much of this work is being done through committee work and has yet to impact classroom education of the social culture that supports white supremacy. Further, while the Office of Diversity, Equity and Engagement sponsors "resources for personal and professional development, resources for financial assistance, academic advising and tutoring, a summer bridge program for entering first-years, and a variety of support services through the Center for Diversity in Engineering (CDE)," these types of programs have historically failed to make measurable progress in increasing diversity in engineering because they do not address the systemic structures which continue to perpetuate racism (UVA Engineering)(Lee et. al, 2020). These programs are band-aids to assist assimilation into the dominant perspective because they do not address the structures which cement white supremacy into the university. As an institution, SEAS can accountably educate students on the school's history and recency of racism, include social justice specifically in the objectives of classes, and expand the perspectives which they include in classroom teachings and examples.

During their community initiatives, STRIVE assessed areas for educational programs which hold the university accountable for its contributions to white supremacy. In the process of holding UVA accountable for its historic racism STRIVE hopes the university will respond to

repeated calls from the Black student body and Charlottesville community to change these structures. STRIVE suggests that SEAS continue historical training about UVA, sponsor student research projects into diversity in SEAS, and consider implementing required courses or workshops about white supremacy and DEI in every year of education. Combined, these initiatives seek to understand how racism created the spaces students occupy and how students benefit from this history all to address and change the foundations of white supremacy UVA is built on.

Other peer institutions, including the University of San Diego, have prioritized social justice in the engineering programs through core engineering classes. Here, the University of San Diego has two required engineering courses — one for first-year engineering students and another for second or third-year students— which establish social justice as a core objective. Further, the University of San Diego has piloted multiple technical core engineering classes with social justice and equity in mind. In these courses, they evaluated how their current classroom pedagogies were biased in a white male perspective and they sought to include a variety of perspectives in their redesigned courses. One example of their work is in teaching a second-year engineering course on thermodynamics with culturally sustaining pedagogy (CSP). CSPs "encourage students to connect their lived experiences to course topics, broaden conceptualizations of energy, and help individuals acknowledge the differing values and perspectives of others" (Hoople et al., 2020). In their thermodynamics class, professors prioritized teaching concepts through renewable energy and the lived experiences of their students in order to actively engage their classrooms on the topic. These adjustments to courses adjust the default of whiteness in engineering to a more representative and equitable program. At

UVA, a university entrenched in white supremacy, these changes are necessary to begin developing diverse, inclusive, and equitable classrooms.

STRIVE and connected parties urge the SEAS to explicitly investigate and adjust legacies of white supremacy throughout the engineering experience. This includes addressing how UVA designed and upheld white supremacy, condoning engineering as a neutral profession, and rethinking how a limited perspective arises in classrooms. STRIVE's interventions, the work of the graduate ESE Social Justice Collective, and examples from other universities leading ethical engineering education are all guiding forces for SEAS administrators and decisions for increasing DEI.

Conclusion

White supremacy has shaped engineering. Discrimination became key to the profession through its development during colonization and the Industrial Revolution and continues to shape the experiences of underrepresented and racically minoritized students at predominatley white institutions like UVA. These legacies have normalized white supremacy and racism at these institutions and created programs that train unethical engineers because of the influences of racism in their daily experiences. As a collective, the SEAS must rethink what is valued in engineering, and should actively address the legacies of white supremacy that take place in the school in order to address these unethical legacies and impacts. The SEAS has the opportunity to support diversity initiatives, increase representation amongst faculty and staff, and rethink the pedagogy in classrooms as an effort to address the perpetuation of racism in school. In a local community approach, STRIVE investigated the influence of racism at UVA, how this influence creates engineers with unethical foundations, and designed interventions emphasizing care ethics, duty ethics, virtue ethics, and utilitarianism in their methodologies. STRIVE calls UVA and the SEAS to continue these initiatives and to expand these programs in the required experiences of engineering students. Further, universities should rethink their core engineering experiences to specifically prioritize social justice and diversity, equity, and inclusion. By accountably addressing contributions to white supremacy and prioritizing social justice, engineering schools like the SEAS will more justly reach their goals of training engineers that promote the well-being of communities.

Appendix

Appendix A

Short (present- 1 year):

I. Inclusion of educational slides throughout the engineering school
    A. This program will provide a database of PowerPoint slides. This database contains three categories: 'Contextualizing UVA's History', 'Designed Racism', and 'Alumni Successes.' Every week each class in the engineering school must discuss one of these slides, connecting the slide to their particular class, technical solution, or potential career path. Looking for implementation within the ESE department during the spring semester to pilot the program.
II. Oral History Exhibit of SEAS Integration and Coeducation
    A. In collaboration with Reflections: Oral History at UVA to be presented in Spring 2022.
    B. Focusing on rebuilding relationships with BIPOC and female alumni and collecting their narratives of their time at SEAS.
III. Collaborating with Professors Keith Williams and Ben Laugelli on developing the new STS1500/ENGR curriculum
IV. Creating introduction slides for all the maintenance and facilities workers throughout SEAS.
    A. Including pictures and bios submitted by each individual who chooses to participate. Slides then included on TVs throughout SEAS. Students will be encouraged to get to know the facilities and maintenance workers. Addressing the history of UVA's segregation, the treatment of the Black Charlottesville community, and a general disregard for the workers providing necessary services for the functioning of the university.
V. Expanding STRIVE numbers to ensure longevity within the engineering program and commitment to these goals.
VI. Designing a website based on trading zones to educate engineers on environmental justice and the Rights of Nature to limit the support of hazardous projects.
    A. Designed in collaboration with SunTribe Solar and the Social Justice in Engineering Workshop and under the guidance of Kimberley Fields and Leidy Klotz (draft published by December)

Mid (2-4 years):

I. Creation of a grant program partnering undergraduates with professors to redesign a course's curriculum with a focus on including diversity, equity, and inclusion throughout the class.

A. Creating between 6-10 pairs that can take their research and findings into their smaller learning communities (i.e. major departments and classroom discussions), creating an ever-expanding network of impact. Currently collaborating on this program with the Center for Teaching Excellence.
B. Has the potential to expand with Professor Louis' NSF proposal by having cross UVA and local minority-serving institution partnerships.

II. Create direct pathways for classes to work with the Charlottesville community in outreach projects targeting the requests and needs of the local community.

III. Mandating all professors attend moderator training for discussions concerning race and privilege.

Long: (5-6 years):

I. Complete overhaul of core engineering curriculum ensuring that social justice, human impact, and one's privilege are adequately addressed.
    A. Including culturally sustaining pedagogy throughout every class.
    B. Examining how traditional teaching examples may or may not be connected to White supremacy.
    C. Including classes relating courses technical material and social justice in core major requirements.

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