Juan Bosch is attributed the following quote, “Quien no vive para servir no sirve para vivir”. This translates to: Those who do not live to serve do not serve for living. Bosch, a professor who stood up to Trujillo’s dictatorship, prioritized education of his community as a tool to empower Dominicans against the current regime. I keep this quote present in everything I do; I want my effort to be in the service of others. This became especially important for me when I left Puerto Rico to study at Cornell University. My first year as an undergraduate was tumultuous as I was struggled in my transition to the United States. Just as I questioned my decision to pursue science, a friend of mine was murdered through an incident of gang violence in the neighborhood next to the one I lived in Puerto Rico. Although I was upset, it made me realize the unique position I am currently in. Through science, I have opportunities that others close to me do not have. Moreover, as a student and faculty, I can ensure that more people like me pursue higher education and science. From then, the opportunity to serve my community through academia became one of my drives to do well in school and in research. Specifically, I work hard for my long-term goal of having my own research group as a professor at a university. This way I can use education to mentor and shape underrepresented students into future leaders of STEM that focus on service and betterment of their community.

Despite initial struggles, I was able to graduate with honors from Cornell University. I even completed a research thesis with Dr. David Deitcher, characterizing synaptic properties of a novel Drosophila mutant to use as a developmental model for epilepsy. During my undergraduate career, I realized that part of my struggles stemmed from feeling isolated at school. For example, in our first year, we are assigned to small cohorts of about ten students with an undergraduate biology advisor. I was the only minority student in the cohort and felt embarrassed discussing my academic struggles with them. Specifically, I was afraid that my struggles proved it was a mistake to have been admitted into the university. Therefore, I did not have many people to discuss ways I could improve. This is why, as a senior, I applied and became an undergraduate advisor and asked to have minority students in my cohort. I wanted to make sure that other students like me could reach out for help from the day they started classes. Hence I helped them organize when to take required classes in a way that was not overwhelming. I showed them school resources that could help with courses. Most importantly, I shared my own stories on how I was able to improve in courses and research. As a result, my students opened up a lot and met more with me than advisors typically meet with their students. In the end of the year, they had passed their science courses in much better standing than I had before them. I have kept this experience in mind even as a graduate student. Because of it, I am now co-creator of 'Cientifico Latino’, an open-access resource for students interested in a career in science. Through it, we hope to advise and mentor students by providing fellowship sample essays, networking opportunities, and blogs for career and academic guidance in STEM. I also developed a workshop with Dr. Medina-Guerrero on how to make the most out of mentorships in research for underrepresented minority students (URM). Ultimately, our workshop was incorporated in the SACNAS Conference of 2018 and had the opportunity to lead it there.

Feeling excluded as an undergraduate, also made me realize the importance of having a community on campus. Hence, I became a resident advisor (RA) for one of the dorms with the goal of making it feel more welcoming. For example, I implemented language dinners, where people would eat at a table to practice a certain language as a way to celebrate diversity on campus. I also developed workshops to discuss concepts like “growth mindset” and “imposter syndrome” with students to open up about insecurities in school and how to overcome them. These discussions reaffirmed what I suspected based on my experience. Other minority students feel as if they don’t belong in the university and are not sure about resources available for help on campus. This is why as faculty in the future, I would focus on mentorship and creating more academic resources for minority students in STEM.

Two academic resources I would be excited to expand are bridge programs and post-baccalaureate research programs (PREP). My summer after second year in Cornell, I volunteered to tutor students in the pre-freshman summer program (PSP). PSP is a bridge program that is meant for students admitted into Cornell and identified by the administration as benefiting from taking supplementary science courses prior to taking science courses in fall. From the students selected, 89% are underrepresented minority students (URMs). Dr. Stephen Lee taught the chemistry supplementary course and designed it based on the Treisman Science program, which includes collaborative problem solving. It allowed for students of similar background to work together in smaller group settings where they can interact more with the professor. His data shows that 19% of minority students that took General Chemistry after taking his course that year received an A while only 8% of minority students that take General Chemistry receive the same grade (Lee, unpublished).

This experience was important for me to understand that creating an inclusive environment on campus does not stop at recruitment of diverse students or faculty, it is also providing resources so that people of different backgrounds can thrive. PREP is also very helpful for URMs entering doctoral programs. As a senior undergraduate, I was hesitant to apply for doctoral programs. I had talked to an administrator of a summer research program I was selected for, and she told me that I would not be a competitive applicant because there is no “affirmative action” in many graduate programs. Fortunately, I decided to apply for the Yale PREP program to gain more research experience before applying to graduate school. In this program I gained valuable professional and scientific guidance from my research advisor, Dr. Daniel Colon-Ramos as well as Dr. Michelle Nearon who coordinates the program. Having these mentors and a cohort of URM students through PREP, gave me the confidence to apply for top programs in my field of interest. Moreover, they helped me become more engaged in science through opportunities to present my work on campus and attend professional and scientific workshops on campus.

Bridge and PREP programs also allow students of underrepresented minority groups to explore research institutions in a comfortable manner that will allow them to make connections with faculty and make it likely for the students to apply for degree programs in the school afterwards. In my own PREP cohort, most students applied and accepted their Yale graduate program offer. That is why, as an undergrad I served as a program director for the student-run NGO, ‘La Visión Latinoamericana’. Through our group, we hosted professors and politicians from different countries in Latin America to give workshops or seminars at Cornell University as a way to promote visibility and collaborations between our academic community with Latin American ones. As a graduate student, I was excited to be involved in the first preview weekend of the Biological and Biomedical Sciences Program (BBS) at Yale University last year. We hosted 9 senior undergraduate URM students with strong research and academic record to visit our program and campus in the begging of the fall semester as a way to ensure that they consider applying to Yale when most PhD programs applications are due in December. While we only recruited for one of the track programs under BBS this time, I am leading expansion to tracks that I am involved in like Neuroscience and Genetics.

As a graduate student in Yale’s Biological Sciences program, I still confront problems I had in my undergraduate years. In a recent survey, it was stated that 70% of URM students in the program feel isolated and wished they had more diverse mentorship (YBDIC, unpublished). This is why I decided to start a SACNAS (Society for the Advancement of Chianos/Hispanics and Native Americans in Science) Chapter at Yale University last spring. It is the first time Yale University has one, and it is the first one in the state of Connecticut. My goal with the SACNAS Chapter is to create a space through which URM students can connect and train to become leaders in STEM. As a result of these initiatives to foster diversity and my academic efforts, last year I was awarded the competitive *Dean’s Emerging Scholar award*.

Finally, I have been lucky enough to find a laboratory during my graduate school in which I can prosper with my scientific and outreach goals. In the Dietrich lab, we are a quite multicultural team with members from Turkey, Iran, Brazil, Puerto Rico, and China. Additionally, we come from very different fields of study spanning from engineering, computer sciences, biology, and psychology. This means that when I give a research in progress to my group, I will receive very specific questions from people outside of my field and broader question from people inside the field. As a result, it exposes me to questions I had not thought of before and pushes me to make my science more clear. In my presentations I have learned about how to normalize data in order to see my results in different perspectives, and I have learned of new behavior protocols I can test on my mice. Moreover, the fact that we are so different from each other makes us far more comfortable asking questions and giving feedback: there is no space for judgment, and we are there to learn from each other. This experience has taught me that diversity in the lab strengthens our research and my scientific training. Furthermore, it shows that in order to create an inclusive environment in science, we need to learn different ways to connect and communicate with people that are different from ourselves.

In summary, I want to serve minority communities through the creation of diverse scientific initiatives focused on education and support and to pursue a career of scientific excellence. The Gilliam Fellowship would allow me to continue my doctoral training and help me become more confident and competitive as I pursue a career in academia. Moreover, it will support my initiative to change the demographics in STEM and improve education and research in academia.