Research and Leadership Statement

Past Research   My prior research experience has taught me about the challenges and opportunities of working in interdisciplinary areas of Human-Computer Interaction and Design. At **UC San Diego's Design Lab**, I worked with **Professor Scott Klemmer** and doctoral student Vineet Pandey to engage citizen scientists in the scientific discussion website, Gut Instinct, so people could learn about the human microbiome. This platform creates a community of learners who engage in asking and answering research questions, among other means of learning; however, the public's contribution to microbiome research is missing due to a lack of awareness about current microbiome research and lack of translation of scientific work into accessible learning material.

During my eight week summer internship, I created tutorials to improve public engagement with Gut Instinct and highlight its interface to showcase it as the ideal microbiome learning platform for everyday citizens, thereby reducing their scientific anxiety and eliciting broader contributions. I implemented the design process towards two aspects: identifying my constraints such as an appropriate length for the tutorials based on the audience's attention span, and educating myself with storyboard learning material by Scott on how to compose useful tutorials. Working on a sharp turnaround time for public deployment of the website, I rapidly iterated on high-level mockups of the tutorials, inviting feedback from my mentors as well as novices and expert microbiome researchers. As a result, my work bridges the gap between the public and scientific communities to help them collaboratively create a concrete understanding of the microbiome.

Leadership Roles   Once my summer internship at UC San Diego concluded, my perspective on life broadened which in turn, shaped me into a more outspoken individual. I began to witness elements that were missing in my everyday environment at Cypress College and discovered the lack of support organizations for the Black community (includes African Americans and Africans), the most underrepresented group reported among STEM careers. To combat this issue, I applied and obtained the STEM Ambassador for Sciences position for the STEM Club where I began designing the AfroSTEM event: a social networking event available for all students to celebrate Black achievements in every field, but with a considerable focus on STEM achievements. I discussed my vision for the event with the head STEM counselor as well as the Program Director of the STEM Program and received nothing short of positive remarks. I am proud to reveal that the AfroSTEM event is set to take place in February of the 2018 Spring semester in honor of Black History Month. I believe this event will be a great opportunity to encourage more Blacks into STEM careers and give those who are hesitant to enter STEM careers the much needed support and encouragement.

I have also worked closely with the STEM Program director on launching a high school outreach program designed to encourage K-12 students from underrepresented groups within the ABC Unified School District to consider Computer Science in their future. By utilizing Google's igniteCS program, the students will be given a hands-on coding learning experience thus positively contributing to the success and expansion of the program.

My leadership roles not only showcase my initiative, interpersonal and collaboration skills, but also publicize my identity as an African American lesbian woman to all

disadvantaged underrepresented groups that they too can have a voice and identity wherever they set their heart and mind towards.

Future Directions of Research   To me, conducting research emits a strong sense of appeal since research is a tool for building knowledge and contributing to group efforts on innovative practices over time. My next approach for feeding my appetite for research includes applying to internships at the industry level, preferably Microsoft Research Labs. From an opportunity at Microsoft Research Labs, I intend to attain a greater comprehension in **areas of research** for Human-Computer Interaction, Design, Education Outreach, or Crowdsourcing.

For Human-Computer Interaction, I would love to work with principal researcher **Rob DeLine** on improving development tools like Trill via user-centered design because every tool has the potential to improve. His collaboration with 343 Industries on implementing Trill for Halo 5's data processing system especially peaked my interest of working with him since obtaining a Software Engineering position at an interactive games company is the path I am currently pursuing as a Computer Science major. When conducting research on data processing, organization is crucial and so is having an organized development team. I have demonstrated my organization skills in my past research experience by keeping constant effective communication with my mentor via asking questions to clarify my comprehension of certain processes and often challenging ideas of why a specific product should be implemented in a specific way. Another researcher from Human-Computer Interaction I would also love to work with is senior researcher **Mary Gray** due to the reason that we share a mutual passion for providing a voice for underrepresented groups. Her recent work with analyzing the identity of on-demand workers interests me greatly since it contributes toward publicizing the significance of social identities and social contexts and how both directly connect to success in research and the workplace. I would bring personality to her team. The correlation between her research and my objectives demonstrate how two different individuals can share similar insights yet apply them in different contexts. In this case, to different underrepresented groups. Perhaps having someone on her team with a fresh viewpoint, like myself, can help us discover more promising work for on-labor workers. The resources and knowledge I acquire while conducting research with her will allow me to utilize some, if not all of that knowledge towards the underrepresented group I am currently focusing on. Apart from Human-Computer Interaction, I am also drawn to Research in Software Engineering, specifically with research manager **Tom Ball**. His work on improving program reliability by promoting physical computing to people (regardless of age) who have not had a first hand experience with educational technology for Computer Science is fascinating to me. I personally resonate with his work because I take initiative toward educational outreach programs and organizations as well. I actively sought out a resource I could use for the STEM Program's high school outreach program on my own time and discovered a concrete resource via Google. Working with researcher Ball would allow me to engage in a more prominent outreach program to help effectively educate me on how I can improve my high school outreach program. Perhaps there are certain methods I discovered that I implemented for the high school outreach program that the Microsoft MakeCode team should consider such as how to effectively communicate and reach out to a younger audience by using a younger researcher such as myself.