Personal Statement:

1. I am interested in my area of research because I am fascinated by the science of life and how its different forms interact. I find the way that life continually evolves into diverse forms on a massive range of scale to be beautiful. That we can quantify and measure this using computational tools is an irresistible prospect.
2. I often find that I am best at leading when I am creating novel concepts and plans. Others may lead the group in more practical and social aspects, but I feel comfortable in leading discourse on conceptualization.
3. I am analytical, creative, and innately curious. I am more than “casually” interested in science. I have background in both science and the humanities. I have an interest and capability for scientific communication. I am a bilingual dual citizen with international experience and a global perspective.
4. As a person interested in a career in research, the fellowship will not only help me directly by enabling my research and education through funding, but will also enable me to expand my professional network and learn from other experienced people in my field. Additionally, with GROW funding, I may be able to expand my research aims to an international scope.
5. My personal statement addresses intellectual merit by expressing my interest in expanding on a new field in the biological sciences. Broader impacts are addressed because I am specifically interested in international collaboration.

Previous Research:

1. One
   * My first exposure to formal research was when I was accepted as a fellow in the National Science Foundation's S-STEM program in Fall 2022. This led to my involvement with the lab of my research mentor, Dr. Geoffrey Zahn, at Utah Valley University. Here I have actively participated in the design and execution of experiments. This hands-on engagement has been instrumental in honing my skills in data collection, analysis, and interpretation, as well as collaboration with fellow students. My particular project has been the -"Spatial dynamics of foliar fungal community structure in the Pando Aspen Clone." (Ongoing, presented at UCUR and NCUR conferences)
     + I developed a research project for the National Science Foundation S-STEM program which I presented at the S-STEM Research Symposium at Utah Valley University (UVU) in Dec. 2022. I designed and presented a research proposal, "Spatial dynamics of foliar fungal community structure in the Pando Aspen Clone." This ongoing project involves collaboration with the USFS and NGOs who are working to protect the world's largest tree. During the course of this semester, I will be analyzing foliar samples using statistical methods. I will be using the fungal ITS2 region for Illumina meta-barcoding, and analyzing foliar community structure using the DADA2, phyloseq, and vegan R packages. I will present this research at the UCUR and NCUR conferences this year. With my mentor and collaborators, I aim to submit the project’s results for publication during this semester.
   * Botany 3500: Mycology, Utah Valley University - Department of Biology, Orem, Utah, 2023. -"The Relationship of Foliar Fungi to Plant Root Architecture Utilizing Transparent Soil." (funded by UVU SAC Grant, presented at UVU)
   * (Relevant?) Roots of Knowledge Gallery, Utah Valley University - Fulton Library, Orem, Utah, 2023, Research Assistant. -Researched, fact-checked, and wrote historical item descriptions for virtual tour app of the gallery. Contributions extended to the creation of thematic guides, including those focused on environmental & scientific, LGBT, and Hispanic history.
     + I worked as a Research Assistant at the UVU Fulton Library in 2023. In this role, I researched, fact-checked, and wrote historical item descriptions for the Roots of Knowledge Gallery. This is a massive gallery of stained-glass images showing human cultural/intellectual history through more than 40,000 objects and people. I created thematic guides focused on themes such as environmental and scientific history. I also participated in tours and translation of materials into Spanish, enhancing my ability to communicate scientific concepts across diverse audiences.
   * (Relevant?) During the summer of 2022, I was the Cultural Resources Intern at the UVU Field Station in Capitol Reef National Park. I was working with the park archaeologist on the cultural resources of the park (i.e. petroglyphs and archeological sites). This was not biological research, but it did involve fieldwork and data collection under sometimes harsh/dangerous conditions.
     + Another example of nonbiological research I participated in was during the summer of 2022 as the Cultural Resources Intern at the UVU Field Station in Capitol Reef National Park. During this summer I lived at the park which is quite isolated in the beautiful Colorado Plateau (the nearest supermarket is a 45-minute drive from the park). I was working with the park archaeologist on the cultural resources of the park such as petroglyphs and archeological sites of LDS settlers and the native Fremont Culture, and the park's museum collection. This was, of course, not research in the life sciences, but I did gain a lot of experience doing fieldwork collecting data under sometimes harsh/dangerous conditions. We often visited extremely isolated desert locations in the 100-mile-long park during Utah's monsoon season and had to be constantly prepared for both blazing sun and flash floods.
2. Something something add in complicated methodologies
3. During all of my research experiences I have worked with a group, or at least some collaborators. I have also working under my research mentor in the Pando project, my supervisor at Roots of Knowledge, and the Park Archaeologist at Capital Reef.
4. As a bioinformatics student, the analysis of the results was my primary job in the group during the Botany 3500 experiment on root architecture. In the Pando project, I also assisted with the analysis of results, but was working with collaborators.
5. My activities in the Pando project address the intellectual criteria by engaging in research in an under investigated area, the microbiome of clonal plant organisms. My activities address the broader impacts criteria in various ways: my research on Pando may help to inform conservation decisions about the world’s largest tree, and other aspen groves. My time with roots of knowledge was all spent in service of disseminating accurate information about diverse human achievement, often to children, many of whom had not had opportunity and exposure to those ideas. While working at Capitol Reef, my activities assisted in the cataloguing and interpretation of the cultural histories of various native cultures, as well as that of the LDS faith.