

For the summer, I will be building off of previous work involving a Cable Driven Parallel Robot (CDPR) for space exploration and monitoring. In addition to this platform, a Virtual Reality interface was integrated to allow operators to visualize their environment for teleoperation. Previous work demonstrated the feasibility of rendering a real-time point cloud environment but lacked operator evaluations and faced challenges related to bandwidth, LiDAR limitations, and live rendering performance. To address these issues, this research will refine the system by optimizing point cloud streaming, utilizing alternative LiDAR hardware for a wider field of view, and improving real-time visualization. A key focus will be evaluating telepresence effectiveness through NASA Task Load Index (TLX) and System Usability Scale (SUS) assessments, comparing point cloud visualization to stereoscopic vision for telepresence.

The opportunity to work with robots has always been my passion, and the past few years of actively engaging in research within this field has been nothing short of a dream. Upon completing my undergraduate degree, I plan to continue my studies as a PhD student at UNLV under the mentorship of my advisor Dr. Paul Oh. This scholarship would be instrumental in helping me prepare for graduate school and advance my academic career. The challenges I've faced in the past have only strengthened my resolve to pursue a future in academia, and I am determined to continue contributing to the field of robotics. My long-term goal is to become a professor, leading my own research lab and mentoring the next generation of engineers, and this scholarship is a stepping stone for me in this direction.