Christopher Metellus Professional Statement

Before entering the university, one experience served to strengthen my resolve to pursue a career in engineering. As a Science Achiever at the Museum of Science and Industry, I worked alongside fellow high school students who were equally passionate about science. Every week, this activity would involve presenting science topics to hundreds of museum guests, and this interaction served to strengthen confidence in our scientific acumen and communication skills. Overall, this experience serves as a reason for me to look for a career where interacting with equally technically passionate people was commonplace.

The end of freshman year led to the start of a research internship at Northwestern University, where I was paired with graduate student mentor Stephanie Ribet and principal investigator Vinayak P. Dravid, PhD, and both of them would serve to guide me towards the proper ways to conduct research. Stephanie was quite instrumental in critiquing writing submissions, and Professor Dravid served to provide unique insight that went beyond the basic scope of the research being conducted. After weeks of smaller presentations to lab groups, the culmination of the research was presented in a final presentation to other Northwestern graduate students and faculty. The research which had been presented a couple years back has been used by Stephanie, and recently she was informed that the research paper she completed with said research had been published. This research internship served to further strengthen my communication skills, and it also served to open up interests in the field of nanomaterials and nanotechnology.

Motivated by the summer research experience, the research done by university professors was analyzed, and after some digging about what each professor did, I decided to apply for a research position at Professor Van der Zande's laboratory. Unfortunately, the school had decided to release students back to their residential stays until COVID could be mitigated. While this did put a delay on the research options available with the chosen professor, the fall presented opportunities where contributing to the research was still possible despite being many miles apart. Using Legos, a testing device was created to help identify the elastic modulus of an important material for the physical experiments performed at the university laboratory. The research continued into the next semester, which involved computational interpretations of the experimental results of graduate student Hyunchul Kim, who also worked under the tutelage of Professor Van der Zande. In support of Hyunchul's work, the accuracy of the experiments was compared to theoretical

values. At the end of the semester, I was able to demonstrate the research I had done to support the project, and this research experience, more than any other, can serve as a testament to the dedication I have towards doing research despite adverse circumstances.

Currently, I am taking part in a Science Gateways Community Institute coding program, and through this program, many research experts will teach about the ethics and basic skills used within research computing, culminating in a final poster presentation. Research will be done in teams of like-minded individuals, equally passionate about discovering something new and advancing their knowledge in the field of computer science. In addition to this, I am also participating in two design mentorship programs which will fortify my knowledge of mechanical design and how I can apply this towards my future career endeavors.

Looking towards graduate school, my interests lie towards working within subjects of nanomaterials and robotics. The research completed alongside Professor Van der Zande and the design experience accumulated through the academic curriculum and summer programs will serve to provide strong evidence towards my work ethic and my ability to succeed in a higher level of schooling. After graduate school, I aspire to work in the field of flexible consumer electronics or automated manufacturing, depending upon the graduate field I select.