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Personal Statement

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100 Bureau Drive
Gaithersburg, MD 20899

Dear NIST SURF team,

I fell in love with engineering when I became a founding member of a FIRST robotics team that was started during my senior year of high school. When the FIRST season was over, I felt the need to continue building on my engineering skills. I began to experiment with model rocketry, which is still my hobby. I converted my longboard to be electric. I welded the motor mount onto the back truck and hooked a Turnigy electric motor to it. I used an electronic speed controller paired with a transmitter and receiver to control the acceleration and breaking of the board. I learned how lithium polymer batteries worked and hooked two 5000 mAh batteries in parallel to power it. I began to realize that I naturally gravitated to math and science in high school and constantly surrounded myself with various engineering projects. I knew I wanted to continue my education in mechanical engineering, but I did not know what I wanted to do with a mechanical engineering degree. I began to explore my options for a career when I picked up an unexpected past-time, reading.

Reading became a big part of my life in university. I started to replace all my time wasters including scrolling through Facebook and TV shows with reading. The first book I read, *Space Chronicles* by Neil deGrasse Tyson, sparked a huge transformation of the interests in my life. For most, it is scary to think of something so huge and complex. I see opportunity. I see an adventure waiting to happen. It empowers me to join the force for space exploration and be at the forefront of human adventure. Reading books that let me explore the universe continues to inspire and invigorate me. It fills me with hope for the future. It is what made me fall in love with astronomy, physics and, ultimately, aerospace engineering.

I have nearly 3 years of experience leading organizations, with my current one being an aerospace engineering organization. As co-founder and Chief Technical Officer of UNH Students for the Exploration and Development of Space (SEDS), I have developed a skill set that allows me to understand my organization members' personalities and commitments to better manage the team. Teamwork is a skill that can only be learned in practice and having experience in engineering projects has helped me be a better communicator and team player. As head of propulsion at UNH SEDS, I gained experience in running design meetings and detailing expectations for each member in my group. In my research position this past summer through a research award, I was able to gain experience in data analysis using Python and the experience has given me a better understanding of the process of research and working under deadlines.

To move forward onto new research, I have set my sights on the NIST SURF program. During the fellowship, I would be able to begin research on material deformation. From completing Materials Science this past semester, I have become fascinated by the subject. It would be an honor to apply my knowledge into real world applications at NIST. The research experience would not stop after my involvement with NIST. I would be able to present my findings at various conferences and continue the research into the Fall semester. The communication of results is important to the engineering profession and I have made it a personal goal to continue to improve that area through my time as an undergraduate and beyond.

If you have any questions about my application, do not hesitate to contact me.

Sincerely,

Charlie Nitschelm

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