Charlie Nitschelm
30 Coe Drive
Durham, NH 03824

November 7th, 2018

Dear Lockheed Martin,

I am a 3rd year mechanical engineering major with a minor in physics at the University of New Hampshire (UNH). I am writing to apply for the Manufacturing Planner Intern posistion in Littleton, Colorado given my extreme passion in space exploration and the global push to make humans a multi-planetary species. I am thrilled at the chance to work for a company that is at the forefront of commercial space exploration and has proved time and again that creativity, hard work, and resilience create beautiful and world changing possibilities. To that end, I feel it crucial to highlight relevant experience I have acquired that would qualify me to be part of your engineering team.

Besides the natural enjoyment I experience from my classes, I naturally apply my book knowledge to summer internships and club/organizations. During the summer of 2017, I obtained a research grant to work on gamma ray polarization in solar flares at the Institute for the Study of Earth, Oceans, and Space. This was my first exposure to a professional research environment and allowed me to experiment with high-level physics topics that I was interested in. During the summer of 2018, I was a researcher at the National Institute of Standards and Technology in Gaithersburg, Maryland researching Inconel 625 in tension and compression at high strain rates and thermal heating. I was able to perform over 50 tests at various strain rates and temperatures to fit to a Johnson-Cook model to allow better manufacturing simulations of a lamina insert for a heat exchanger. I have also earned a part-time job at TURBOCAM International as an manufacturing engineering intern primarily working on the effect of various tool coatings on endmills on the manufacuting floor to determine the effect in endmill tool life. I also have 2 years of experience leading organizations at my university. As founder of UNH Students for the Exploration and Development of Space (SEDS), a rocket engineering and outreach club, I have developed a skill set that allows me to understand my organization members' personalities 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. I also lead all engineering efforts including designing and testing our first multi-stage, high altitude, carbon fiber rocket that had a nominal flight in late September to nearly 2,200 meters. UNH SEDS has now committed to the deisgn, manufacturing and testing of a vector controlled hybrid engine to compete in the Spaceport America Cup in June 2019.

During my high school years, I had no clue what I wanted to apply my mind to for my adult life. I had the pleasure of experiencing the thrill of high power rocketry during my first year at university which completely altered my state as a student. All the curiosity and imagination I apply to my daily life is to continue my learning to one day become a part of world changing team in the aerospace industry. Work culture is extremely important to productivity and I think my personality will fit perfectly in this engineering posistion, and the others that also spark my interests that I will also apply for for the summer of 2019. Lockheed Martin is propelling the future of human spaceflight. I mean, what is a cooler future then waking up to start your day amoung the stars… I have attached a short portfolio that illustrates my aerospace engineering accomplishments that I feel have been left out from the rest of my application on the next page.

Thank you for all your time and consideration. If you have any questions about my application, do not hesitate to contact me anytime.

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Space and Engineering Portfolio

UNH Students for the Exploration and Development of Space (SEDS) 2017-2018 Rocket Compilation Video:

During the beginning of our first year as an engienering organization, we had no idea how to build a rocket. We spent the year learning rocket building techniques and optimizing our flight simulation software using MATLAB. The video below is the culmination of our work to finally reach a successful multi-stage launch in preperation for the University Student Rocketry Competition in the Fall of 2018.

https://www.youtube.com/watch?v=l3QVM1bIWs8

UNH SEDS University Student Rocketry Competition Launch – September 29th

The culmination of our entire organization led us to this launch video below. Although it did not go perfectly, the failures we experienced were calculated risks that needed to be taken to compete. Rocketry is a noble pursuit. It is the truest profession in which failure directly leads to success. It can become discouraging that failure has been experienced more than success, but it has only pushed us more to prove that we are capable of achieving greatness. We would like to thank SEDS for organizing this competition as it has guided us to finally become rocketeers.

https://www.youtube.com/watch?v=qhKtFAfzMnM

Propeller, CO2 and Rocket Powered Baby Crib Car Video:

Over the summer of 2018 in Washinton DC, I took many classes at The Foundery in Baltimore, Maryland on welding, machine shop skills, 3 axis CNC milling, and waterjet. The culmination of this work (and some weekend free time) lead me to make this project linked below with a friend I made there, James Arnold.

https://www.youtube.com/watch?v=nGd9a4myZ-8&t=9s

Xploration Station's 2018 Student Astronaut Video:

My submission to Xploration Station to become the 2018 Student Astronaut. With so many amazing aerospace museums in the DC area over the 2018 summer, I needed to take advantage of it!

https://www.facebook.com/xplorationstation/posts/1939978696069183