Charlie Nitschelm

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To the Starship team,

During the winter break of my freshman year, I witnessed SpaceX land a Falcon 9 on ‘Of Course I Still Love You.’ All my worries and problems disappeared for that moment, stunned with the significance of what I just saw. This moment showed me my passion: space exploration. From that revelation, I immediately started a rocket club under SEDS, the world’s largest student-run space organization.

First, we worked with off-the-shelf engines and used in-depth MATLAB simulations for trajectory and dimension optimization. Then we moved quickly into the development of Runaway, our hybrid rocket engine. We are currently working towards qualifying Runaway so that we can integrate it into a rocket for the Spaceport America Cup in June 2020. The biggest unexpected challenge I faced managing UNH SEDS was the reality that teams are comprised of individuals, and everyone has their own imperatives. It is the leader’s job to understand these priorities and manage accordingly based on the individual. At first, I assumed every team member had the same imperatives as me, which led to over-expectation and frustration. Although there is significant engineering work left before we achieve this year’s goal, my leading abilities have grown the team closer and now contribute their strengths to the common goal. That change in culture has been the biggest impactor to our technical progress. Because of my implementation of transparency and clear short and long-term goals, I have grown the club to the largest, most interdisciplinary engineering organization on campus. In the May of 2019, I ran and accepted the Member at Large position for SEDS USA, the presiding organization for all the SEDS chapters nationwide. I have taken on the development of a SEDS Wiki allowing the transfer of knowledge not just between one college organization, but chapter to chapter across the country. Directing the development of this tool has taught me the struggles with motivating people indirectly, but also the importance of knowledge transfer.

For the summer of 2019, I was rewarded with the Matthew Isakowitz Fellowship, a program started in honor of Matthew Isakowitz (1987-2017) - an engineer, entrepreneur, and an extraordinary individual whose passion for aerospace inspired all who knew him. Learning about his life and the purpose of the program showed me the big picture of why commercial space can be such a cosmopolitan industry: it is exactly 100 kilometers above everyone’s head. The program paired me with Rocket Lab in California as a propulsion manufacturing engineer. Being the only engineering intern during the summer, I gained experience throughout the entire production process of the Rutherford engine for the Electron launch vehicle. I primarily focused on creating tooling to improve the quality and runtime of the engine’s thrust chamber. This position taught me the importance of pushing forward and doing everything possible to progress together as a team. We were also invited to a fellowship summit in LA to meet the fellows, tour various commercial space companies (including SpaceX), and meet notable leaders in each of the companies. I was fortunate enough to connect with Elon during my visit and talk with him about the future of commercial space and the challenges he sees in manufacturing in the coming years. Elon and his mission with SpaceX are the reason why I found my passion in commercial space, so it was wonderful to meet him face-to-face. This last summer was my first exposure to working in commercial space, and it has only solidified my plans for my future career goals.

Humans need to become multi-planetary, and Starship is the most exciting and impactful project going on right now. I believe I can help the Starship team achieve its goal on building the first vehicle to land humans on Mars. Thank you for considering me for the Propulsion Components Manufacturing Engineer position and I look forward to hearing from you all.

Ad astra,  
  
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