

Matthew Isakowitz Fellowship Program

Charlie Nitschelm

The Internship

On May 17th, I moved to Long Beach, California to start my internship at Rocket Lab USA. I was an intern for 13 weeks, and it was a wonderful, amazing experience. 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. The amount of technical knowledge I took away from the experience is currently being directly applied back at UNH with the SEDS team on campus with the development of New Hampshire's first hybrid rocket. It has also given me experience in working with engineers from another country (New Zealand), and has inspired me to seek out a Fulbright in the UK to further my studies.

The Summit

The Matthew Isakowitz Fellowship Summit gathers the entire class of 2019 to network, tour local commercial space companies and develop our knowledge of the industry and its future. It is an understatement to say that this summit was transformative. It perfectly captured what the future of commercial space can be, and what my role can be in it.

Much of our time during the two-and-a-half-day summit was company tours including: Virgin Orbit, Boeing, SpaceX and the Aerospace Corporation. The difference between Boeing and other more 'modern' space was striking, further convincing me of the path I will be taking into commercial space. I was able to connect with Will Pomerantz, the 1st employee of Virgin Orbit who is also a huge proponent of SEDS with which I am on the board of directors of. Virgin Orbit is at an interesting point which reminds me of Rocket Lab just two years ago. Their strategy of air launch is difficult, but if it can be optimized, I see it being an amazing way to get CubeSats to space. Seeing SpaceX was also amazing as it was the company that made me love commercial space and what our generation will be capable of. SpaceX was visited on the Friday, but we were surprised by being able to visit Elon at SpaceX on Thursday as he had some time to spare with us. We prepared questions on the bus ride over as we only had time for 5 questions. My question was selected to be asked and I felt a certain connection between him that became apparent later. I introduced myself and what I do (manufacturing) and asked "Elon, you are a very particular leader in commercial space with specific dreams for each of your companies that many people have hopped on, but what are you doing to ensure post-Elon SpaceX continues on the path you would take it." He danced around the truth but landed on the push for Mars should never stop. Humans are adventurers. Space is humanity at its best. Elon quickly left the conference room after a picture, and we started to leave around 5 minutes later. Then, as I was

heading out of the conference room, Elon's assistant stopped me and asked, "Are you Charlie?" I said yes and she continued and said, "Elon would like to talk to you, if that is alright." We started moving towards his office, too fast to become nervous. As we were walking, she said "Charlie, I would tell you what to expect of this, but Elon does not do this..." All I could say was "What?" as we turned a corner and there he was. He introduced himself and we began talking about manufacturing, his troubles at Tesla, and his vision of space. I got his contact information and have been in contact with him ever since. We also participated in leadership workshops, entrepreneurship panels, and a talk by Beth Moses, the lead of Virgin Galactic's astronaut training program. We also had a reception dinner where we all were able to meet Buzz Aldrin and have personal conversations with him about the Apollo program and what is currently important moving commercial space forward. I also connected with many other current space leaders including Peter Diamandis who was the founder of SEDS and Tim Ellis, the founder of Relativity.

Conclusion

Just 3 months ago I didn't really understand commercial space, but now with working at Rocket Lab and meeting so many impressive passionate people in aerospace, I am even more excited to continue my journey in opening space to more to better the life of everyone. I will forever be honored to be a part of this growing fellowship and hope to continue the push and make people multi-planetary.