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NASA L’SPACE MCA Program - Leadership (Development)

During Summer 2023 I had the privilege of participating in one of the two NASA Lucy Student Pipeline Accelerator and Competency Enabler (L’SPACE) programs. L’SPACE consists of two academies: the Mission Concept Academy and the NASA Proposal Writing and Evaluation Experience Academy. Particularly I was part of the MCA (Mission Concept Academy) and got a chance to work with students from all over the US that share a passion for space science and a drive for career advancement. In the MCA, participants, including myself, had the opportunity to engage in weekly mission development skills training led by NASA scientists and engineers. The 12-week academy is thoroughly designed to offer unique, hands-on learning and insight into the dynamic world of the space industry. This structure created a unique opportunity for us to learn NASA mission procedures and protocols directly from industry professionals. Additional to the skill trainings the program has weekly 1-to-2-hour sessions, providing an invaluable platform for participants to engage with industry professionals and gain insights directly from the experts themselves. These sessions are structured around two key components: the L'SPACE Guest Speaker Series and the L'SPACE Q&A with Industry Professionals.

I find discussing career-advancing opportunities with my friends enjoyable, and we also keep each other updated about them in a group chat. One day, one of our friends mentioned that NASA offers an accelerator program, a program entirely new to me. Intrigued by the opportunity, I decided to give it a try, similar to how I approach other opportunities. While I submitted recommendation letters from professors as part of the application process, their assistance, though appreciated, wasn't ultimately necessary. During the rush of finals week, I focused more on studying for my exam. However, in the middle of that busy period, I received an email beginning with "Congratulations" which was particularly

satisfying for me. This was especially fulfilling because I had been applying to various mentorship programs and internships but had experienced numerous rejections due to my limited skills that were less appealing to big tech companies.

Then once I got into the program, I shared the news to my professors who wrote recommendation letters for me, following this, I began planning out my summer schedule, considering my roles as a research assistant at Thin Films Technology and an International Enrollment assistant at the Kearney International Center. Additionally, I got the opportunity to enroll in the Intro to Software Engineering Codepath class, requiring careful planning for the upcoming months.

I had really high expectations going into the program. The first session was sort of an introduction; we were told that there were over 300 students from all over the United States, and we were split up into groups of ten to fifteen people each, most having a different background. My assignment was to work as an electrical engineer on team 18, with computer hardware engineering as my secondary responsibility.

Our mission was to develop a system for researching the origin and habitability of CERES. Our team developed a rover design that we named C.E.R.E.S. In addition, we completed the project with an 182-page report outlining our science, engineering, budget, and timeframe for the CERES mission. As Team 18's Electrical Engineer, I was in charge of the power system as well as communication & data handling components. We had 6 deliverables namely Org Chart, Mission Concept Review (MCR), System Requirements Review (SRR), Mission Definition Review (MDR), Preliminary Design Review (PDR) and Final PDR Presentation.

I learned a lot about teamwork and leadership while working with the team to develop a system for researching the origin and habitability of CERES. Collaboration was paramount, and our successes and failures were deeply intertwined with how effectively we communicated, delegated tasks, and

resolved conflicts. The use of a Discord channel proved invaluable in facilitating communication and organization within our team. By creating multiple channels dedicated to different aspects of the project, we were able to effectively divide the workload and store files in an organized manner. This structure not only enhanced productivity but also ensured easy access to relevant information for all team members.

I have seen that we were able to meet deadlines as we have that working together mood. Usually, there used to be less communication during the beginning until most get it into the mood, but once we started having these weekly meetings and task check-ups between leaders, we were able to see significant progress. When conflicts regarding workload distribution emerged as we neared the end of the project, we promptly convened to reallocate tasks and ensure everyone felt supported. The issue became clear when the software team fell behind, creating delays for the engineering team that depended on their progress. Frustration began to build, and it was obvious something had to change. To address this, we called a meeting where everyone could share concerns and propose solutions. Kaitlyn, our mentor, played the main role in guiding us through this adjustment. She encouraged open discussion and helped us focus on collaboration instead of blame. As a result, the computer engineering teammates stepped in to support the software section, helping them catch up so the engineers could continue their work. This reallocation of tasks not only balanced the workload but also reinforced the importance of adapting as a team. I learned that leadership is not just about doing my own part, but also about stepping back, listening, and making changes to keep the team moving forward. Through this, I improved my communication and figured out how to handle conflicts better, something I know will help me in my future internships and leadership roles.

At the same time, I had to navigate my own challenges. Early on, I felt overwhelmed by the number of tasks assigned to me. I brought this concern to our project manager and mentor, and my workload was eventually shared with other teammates, who were encouraged to step up and contribute. This reinforced the importance of effective communication, task delegation, and conflict

resolution for the success of any team project. It also showed me that asking for help doesn’t make me weak; it makes the team stronger. Moving forward, I want to be more open with my teammates when I feel overloaded and encourage others to do the same.

Part of why I was able to adjust, and grow was because of the strong support from our leaders. Katelyn, our mentor, played a pivotal role in guiding our team and maintaining organization, helping us navigate challenges and meet deadlines effectively. Additionally, our project manager, Jamar, demonstrated strong leadership throughout the project, providing clear direction and fostering collaboration. However, Jamar faced challenges balancing academic commitments towards the project's end, impacting his ability to participate in the final presentation. Despite this setback, Jamar's earlier leadership laid a solid foundation for our success. Moreover, as some students withdrew due to workload intensification, our team faced increased pressure and responsibilities, disrupting the team balance and slowing progress. Weekly meetings under Katelyn's guidance served as essential checkpoints for staying on track and addressing challenges.

During this program, in addition to completing the deliverables and team project, I had the privilege of receiving all seven attainable skill badges. These badges have provided me with a wide range of abilities necessary for my professional career, ranging from trade studies to leadership, teamwork, and system engineering techniques, CAD and more.

After writing our final deliverable i.e. the PDR, on Saturday September 9th our team presented the CERES PDR to the L’SPACE Academy mentors. But the hardest decision I had to make, and I am still proud of, is because the majority of the team members were unable to join the final presentation, I took the courage to do it alone and later one of my teammates, Bryan, joined me. Together we presented the final work and thank God the presentation went without a hitch. If I hadn’t taken the risk and done the presentation, we wouldn’t even have received the final completion certificate. This experience showed

me that leadership sometimes means stepping up even when it feels risky or uncomfortable. It gave me confidence that I can deliver under pressure, and moving forward I know I can trust myself to take the lead in high-stakes situations, whether that's in future internships or my career.

Reflecting on my journey, I always highlight my experience with the NASA L'SPACE MCA Program in job interviews. It's been an incredible journey that taught me valuable lessons in leadership and teamwork. I discovered the importance of clear communication and effective collaboration, skills that I know will benefit me greatly in my future career endeavors. Despite the challenges we faced, I learned how to navigate them and persevere. Looking back, in fall 2022, I took the Honors 201 course where I completed the Clifton Strengths Finder test. This assessment revealed my strengths: Relator, Learner, Achiever, Competition, and Futuristic. Throughout the L'SPACE program, I witnessed these strengths in action. As a Relator, I easily connected with my teammates, fostering strong relationships. Embracing my role as a Learner, I eagerly absorbed new knowledge and skills. Additionally, my Achiever and Competitive nature motivated me to excel and inspire my team. I'm excited to apply these strengths in my future career, confident that I can overcome challenges and achieve success collaboratively.

Looking ahead, I'm eager to apply the learnings from my experience in the NASA L'SPACE MCA Program to various aspects of my life. Professionally, I plan to utilize the skills I learned, including AutoCAD, during my upcoming internship to contribute effectively to projects and collaborate with colleagues. Furthermore, the program cultivated a sense of professionalism in me academically, helping me stay focused, think outside the box, and explore new avenues of learning. Personally, it encouraged me to be more open-minded, expand my network, and gain clarity on my passions and interests, paving the way for personal growth and fulfillment. Most importantly, it showed me that true leadership is about persistence, communication, and stepping up when it matters, lessons I will carry into my current roles and future career.