1. Describe your short term and long term academic and professional intentions. \* (250-word limit)
   1. How can space be made more accessible and affordable for the benefit of all? I see this being done by building an Earth to Space infrastructure to support low earth orbit to deep space missions. To start this, my plan is to pursue a PhD in Aeronautics and Astronautics, where my focus will be on trajectory optimization for deep space mission design, adaptive filtering/state estimation techniques, and robust disturbance rejection control algorithms where my ultimate goal is to become a professor and create a laboratory to serve underrepresented students to give them the resources to develop academically and professionally. My goal with this is to contribute to open-source guidance, navigation, and controls toolkits and contribute to research with 1-2 first author papers on adaptive multiplicative unscented Kalman filters for attitude state estimation and model free active disturbance rejection control for attitude control. To develop my teaching abilities, I would also mentor students from the AIM Interactive Mentoring Program and the Honors Thesis Mentorship Program. To help them achieve their goals and remove any barriers. Once I become a professor, this would provide the foundation for my research laboratory for flight autonomy where we would develop tests and build novel formation flying missions for dep space missions. This lab would also engage in outreach to underrepresented students in university as well as students in the K-12. Mentorship will be done here by matching undergraduate and graduate students to do research. KHS offers the cross discipline to develop and grow in my field. The King Global Leadership Program would also help me develop strong multidisciplinary and multicultural perspectives and skills to develop my research laboratory in the future.
   2. I am graduating with my second master’s in electrical engineering with a focus on space systems engineering this summer of 2026 and from there start my PhD in aerospace engineering. My research interests include robust GNC algorithms that can reject disturbance and model free and adaptive algorithms. Research and teaching are my academic and professional intentions. Short term I plan on mentoring undergraduate students. At Stanford these would be programs such as the AIM Interactive Mentoring Program and the Honors Thesis Mentorship Program. I want to help undergrads, especially first generation, navigate something that no one in their family has ever done before and remove as many barriers as possible. My goal in this mentorship is to guide them through their undergraduate career and then into their future careers. Whether that is in a professional setting or moving onto higher education. Professionally my long-term intension is to develop novel guidance navigation and controls algorithms for space applications during interplanetary travel. This would include high fidelity modeling and simulation for deep space mission design and trajectory optimization and other guidance algorithms with online optimization. For deep space navigation, this would be research, development, and implementation of filter estimators that don’t heavily rely on the model or are even model free, through techniques such as noise compensation and dynamic model compensation. This would also include online covariance matching for the state, process, and measurement noise. For controls this would include model free disturbance control algorithms with adaptive gains. For mentoring this would include starting a research lab as a professor. This lab would focus on the technical aspects of guidance navigation and control for deep space missions. But it will also serve a higher purpose of targeting students from marginalized communities. Offering mentorship, academic and professional growth to these students. Again, removing another barrier. This program would pair undergraduate and graduate students together, where the graduate student would lead the technical aspect of the research and mentor the undergraduate student assigning them appropriate problems where they will develop their skills. Again, removing the barriers for these students so they can focus on their professional and academic endeavors, while the lab is able to provide an inclusive, safe, and welcoming environment for students to grow.
2. Please tell us when you: \* (All fields required)
   1. Engaged with someone with a different perspective
      1. Part of my thesis was recruiting students to participate in an introductory rocketry course aimed at non aerospace engineering undergraduate students. Many of the students that I spoke to say the same thing. There was a common message of, “I didn’t belong”, “I don’t have the background”. I asked them what interested them in the class in the first place that led them here. They all showed great interest, and we focused on that, and I didn’t want to convince them but just nudged them in the right direction and focused on what they can do in the course. During build week, the students that were the most hesitant at first turned out to be the most active and engaged, taking great pride in their rocket. In total, almost 90% of students that initially signed up for the class enrolled. I learned to meet students where they are and help them become more confident in their own ability.
      2. For my thesis, part of it was recruiting students to participate in an introductory rocketry course where we give them a modified assessment structure. This class was aimed at non aerospace undergraduate students. I reached out through mass email and led discussions during classes, registered student organization meetings, and other academic gatherings. Even though the class was targeted towards this demographic of students, many of them believed that they didn’t belong in the class due to their academic background or prior skills. Many of these students were very interested in the class but decided not to register for the class despite their interests. Many of the students that I reached out too shared a different perspective when it came to the course. They had imposter syndrome, believing that since they were freshman that this class was too advanced for them. Or that since they don’t have this background that they shouldn’t take this class. When speaking to them, I wasn’t trying to change their mind but have them see something that’s already there and that’s their ability and interest in the subject. When I talk to the students, they gave me reasons why this class isn’t meant for them but would still tell me about how much it interests them. So, then we focused on the latter and that helped them to grow their confidence in their ability in the class. We also did check in to make sure that they felt confident and if they had any questions that they would be addressed as well.
   2. Acted with courage
      1. As a teaching assistant for a freshman level astronomy course, this was the students’ first class, and it was also their first STEM class. Most students didn’t come from a STEM background and felt intimidated in this course. During office hours, many students confided in me that they were struggling with effective study techniques and didn’t know what to do. From there I set up a structured study hour where we broke up into groups where they decide the topics and from there the groups would become experts in their topics and create questions. From there, we would compile the questions into a study guide for them to use. The professor found out about this and accused me of doing the work for the student sand that it was unfair. I requested a 1:1 talk with them to explain the situation. How the students felt was intimidated and during office hours, I did not provide answers but structure to build their study habits. This led to a mutual understanding between my professor and I and a 10% increase in exam scores in my section compared to the class.
      2. I think I can talk about the time when a professor got mad at me for helping students create a final exam study document. The context is that a had a group of students that would show up at my office hours for astronomy and the professor didn't make them or didn’t' provide a study guide for them. This is a freshman level class, and they didn’t know how to prepare for the exam. The students don’t come from STEM backgrounds, so they were very nervous about this exam. When the students come to office hours, they would ask me if I could do a practice exam for them, but I told them that I couldn’t do it for them, but I can help them make one. I guided them into making their own by first going through the slides with them then seeing where they got stuck. From there I would have students that were more comfortable in this subject take a lead and develop questions as other students covered other subjects. Then we would separate into groups while everyone would take notes within their groups and teach each other. From there the groups would look at each other’s notes and develop a larger final exam study guide. The professor found out about this and talked to me one on one about doing this for the students. The professor felt that it was unfair that I was doing all of this for the students and that I was doing all the work for them. I was reluctant at first but decided to speak with him about the matter. I understood where he came from, but I also explained my perspective to him too. He was a new professor, and this was his first time teaching undergraduate students from this background. So, I explained to him that they don’t have the same background and have different study methods. And they are also freshmen in their first STEM class ever and a lot of them were intimidated by that. I know it’s wrong to do the work for them, but as a teaching assistant it’s my job to guide and help them, especially since they’re freshmen. It’s not only their first time learning this material but also learning how to study for college.
   3. Fell short of expectations
      1. I overloaded myself during my first semester of graduate school with 5 classes and 2 jobs to limit the amount of debt I had. This led me to get burnt out and not perform well in my classes which ultimately landed me on academic probation with a 2.78 GPA. I learned from this and decided to slow down. From this, I was able to secure Teaching and Research assistantships for the next 3 semesters covering my tuition fees and cost of living. I was able to also lessen my course load and end with a semester GPA of 3.66 which allowed me to get out of academic probation. And then ultimately at the end of my degree, bring my 2.78 all the way up to a 3.28. I struggled a lot, but this was a lesson for me to ask for help and to take things slow. To take the right size load to challenge yourself but not overwhelm yourself and to build repeatable academic routines. All these things have proven valuable for me in my teaching and mentorship.
      2. When I got accepted into the University of Illinois Urbana-Champaign, it was for a Ph. D in Aerospace Engineering. Unfortunately, the professor that I wanted to work with did not have funding available, so I switched my degree to a master’s degree. From there, I was still without funding and was applying for assistantships and research positions. The program is usually 2 years but to save costs on loans since I was out of state, I decided to do it in one year. My first semester, I had to take out over 30k worth of loans for just that semester. To make ends meet I also worked two part time jobs at the university, and to finish my degree in that one year, I also took 5 classes. I was scared that I had to take out more loans for 2 years so that’s why I overloaded myself. And due to that, my grades suffered. I ended my first semester with a 2.78 GPA and was placed on academic probation. Fortunately, that next semester, I was able to find a teaching assistantship which covered my tuition and fees for that semester. I also was able to find a research assistantship with my future advisor who would then be able to fund an extra year of my masters. In the end looking back at it, I did the best that I could in that moment. That second semester I was juggling 4 jobs and taking 3 classes. I was able to learn from my mistakes first semester and sought more help in my classes by engaging more with professors and working with students. If I couldn’t bring my cumulative GPA up to over 3.00 that semester, then I would be placed on leave. That semester I was able to earn a 3.66 GPA and bring my overall GPA up to 3.12. From there, since I was able to acquire funding for another year, I was also able to retake classes and come out with a 4.00 and 3.33 fall and semester GPA, bringing my 2.78 to a 3.28.

My first semester of graduate school I was not prepared for the

1. Please tell us eight improbable facts about you. These could include facts that people wouldn’t expect to be true and/or facts that others are surprised to learn about you. \* (*All fields required*)
   1. In my first grad semester I was on probation and nearly dismissed.
   2. I worked four jobs in my first master’s and worked full time during my second master’s.
   3. I am the first in my family to study beyond eighth grade through college and graduate school.
   4. I’ve held over 25 jobs; my first was fixing houses and cars with family.
   5. I’ve crossed the country three times to pursue career opportunities.
   6. I helped develop, test, and implement software and hardware now flying on spacecraft in orbit.
   7. I taught math and ran an after-school program at the Boys & Girls Club.
   8. I’m Vietnamese but didn’t grow up eating Vietnamese food at home.
2. Connect the dots. How have the influences in your life shaped you? \* (Limit: 550 words)
   1. School was always a place where I felt safe, fed, listened to, and challenged myself to grow. My parents are refugees from the aftermath of the Vietnam war. I grew up as a single parent in section 8 housing and government assistance. I always looked forward to free lunches at school and my mom was always able to stretch food at home for 4 kids. At school I was able to see the world as something greater than my immediate bubble and learn things that I didn’t know were possible. This instilled in me great work ethic, gratitude, and taught me that education was the key to stability. The mixture of safety at school and survival at home made education and learning feel like a mix of possibility and survival.

I developed a deep passion for space ever since I was in kindergarten from browsing the library searching for our weekly book we had to read. I was always curious about space, and my teachers have always nurtured that curiosity. School has always been a place where I felt safe and where I felt like I could grow. That sentiment has led me to pursue a PhD to help students from all backgrounds with their academic and professional endeavors.

During my first master’s program, I was still in that survival mindset and overworked myself, taking 5 classes and working 2 jobs to make ends meet and saving to pay back loans. This led me to getting burnt out and I could not attain the highest academic standard, leading me to academic probation with a 2.78 GPA. That next semester I was able to bring my semester GPA to a 3.66 and get out of academic probation. I learned to ask early, and to develop the right size commitments with routines that I can repeat. Breaking out of this would be difficult for me but I did not let it become an obstacle in pursuit of my goal.

I was able to secure funding my remaining semesters as a research and teaching assistant. Where my thesis research was the effects of an altered assessment structure as supposed to be a traditional approach. I was still developing myself to teach and mentor students as a professor by taking on additional roles as an engineer career peer, where I performed resume reviews, and mock interviews to help students become successful in their professional careers. I also did more research on student assessment by developing curriculum for an undergraduate fluids course. I worked 4 jobs during this time to support, but more importantly developing myself to become the best professor that I can be to help students be successful.

I didn’t stop one poor semester from achieving my goals, but rather as a steppingstone to them. I became more niche in my studies, pursuing additional masters in space systems engineering. While at the same time also being committed to teaching and mentoring. Two of those formative positions were as a youth development professional where I developed and taught computer literacy material to students from 3-6 grade. I was also a math teacher to 8-12 students, teaching algebra, geometry, precalculus, and calculus. I’ve never worked with students in this age group before, so this was a valuable lesson in learning how to engage with students from that background. And, to help high schoolers with their college applications.

I was able to apply my research for my thesis in these courses. From this I was able to effectively design curriculum that was engaging for the students as well as effective assessments that allowed students to learn more and perform better on their exams. I did this by chunking the exams and implementing a staggered approach in the exams set up as well, building upon previous material and breaking up the final assessment accordingly as well.

Moving forward, these events have shown me that my purpose is to help students achieve their professional and academic goals. The way that I’m going to do this is as a professor where I will be developing research programs specializing in autonomous systems for deep space missions. This lab will also have outreach as a key component where we will be working with the local school districts to actively engage and host STEM events to nurture that growth in the students. In the lab we will also have a mentorship program for undergraduate and graduate students. During my time in my PhD program, I also plan to mentor undergraduate students through the AIM program. The Knight Henessey Scholarship Program is a key part of my goal of helping students from all backgrounds pursue higher education and be successful in their academic and professional careers. From the leadership program, multicultural, and multidisciplinary approaches, leadership development and community building are all key to this goal. I hope that the Knight Hennessy Scholarship will be a part of my journey to making higher education more accessible to students from all backgrounds.

* 1. Growing up food was so important to my family and I; it was a means to get together to not only fill our stomachs but our hearts as well by spending time together. My parents are both refuges from the Vietnam war. Coming over and starting a new life, they traded the struggle of war and almost losing their lives for a second chance at life here in the states. They did everything they could to raise my 4 siblings and me. We grew up in section 8 housing and government assistance. My mom would always know how to make food stretch, somehow feeding four kids. Luckily, we were offered free breakfast and lunch at school, and they would send us home with perishable food. My mom would somehow make all that food stretch and was able to feed all 4 kids off that. For dinner she would often make hard shell tacos or fry eggs with rice and fish sauce. 1 egg for each person in a family of 6, half a carton of eggs when a dozen used to be about $2 that would be dinner for our family for years. Sometimes dinner would be a combo dinner from a Burger King, KFC, or Subway coupon. I was always excited for school because they would have my favorite things in the cafeteria, my favorite being breakfast pizza in the morning and crispitos for lunch. My parents did the best they could to raise my siblings and I, even though they didn’t have the role models they needed. My mother’s father was a prisoner of war for nearly a decade, and she didn’t even meet him until he was released. My father fled with 2 out of his 7 siblings when he was just 11 years old, losing his father along the way. Survival rational trauma of war, poverty, and survival played out in their marriage as well and led to emotional and physical abuse which led to their separation. School was always a safe space for me, I was always fed and taken care from 8 am to 3 pm 180 days of the year. This safe environment was where I was able to cultivate a deep sense of learning and exploring. In kindergarten my passion for space started when I found a series of books about the solar system. From there I was hooked on space. The first things I learned about were Kepler’s Law’s and Galileo’s life and how he was excommunicated by his ideas. Growing up too my parents did not have a healthy relationship dynamic, and I had to be the one to get law enforcement involved. I struggled not having an immediate family male role model to look up to growing up. That’s why school and education felt so safe for me. All the things that I was lacking at home, food, a role model, people that would listen and care for me, were all found at school. That made education and learning important to me all throughout my life. I was the first in my family to graduate from 8th grade and go onto high school. When it came to what to do after high school, I didn’t know what I wanted to do honestly. I was worried about the finances, but I knew that I wanted to go to college and figure it out. Fortunately, I was blessed to have gotten a full ride scholarship to Iowa State University. I am eternally grateful for that as I was able to focus on school and extracurricular during my undergraduate career. I faced obstacles along the way; I had difficulty navigating college as I didn’t have a support system. I had to figure it out as a go and only then with hindsight would things be clear. I didn’t know about internships, fellowships, and so forth. I joined the McNair Scholars’ Program to help prepare myself for grad school. I knew that I wanted to become a professor and create research program for students like me. Students that had to figure it out as they went. Students who are first generation and didn’t have the resources or opportunities or knowledge at the time but were still determined to figure it out. From there I went on to get my master’s at the University of Illinois Urbana Champaign. I could not secure funding and had to take out loans my first semester. To reduce the cost of my education, I took 5 classes in my first semester to finish my degree faster. To make ends meet I also was working two jobs on campus. I quickly became burnt out and after my first semester, was on academic probation with a 2.78 GPA. I ended my first semester with a 2.78 GPA and was placed on academic probation. Fortunately, that next semester, I was able to find a teaching assistantship which covered my tuition and fees for that semester. I also was able to find a research assistantship with my future advisor who would then be able to fund an extra year of my masters. In the end, looking back at it, I did the best that I could at that moment. That second semester I was juggling 4 jobs and taking 3 classes. I was able to learn from my mistakes first semester and sought more help in my classes by engaging more with professors and working with students. If I couldn’t bring my cumulative GPA up to over 3.00 that semester, then I would be placed on leave. That semester I was able to earn a 3.66 GPA and bring my overall GPA up to 3.12. From there, since I was able to acquire funding for another year, I was also able to retake classes and come out with a 4.00 and 3.33 fall and semester GPA, bringing my 2.78 to a 3.28. During that time, I took on 2 more jobs, working 4 in total to make ends meet. Before graduating, I had a discussion with my advisor about my next steps. I still had my goal of becoming a professor, but I was lacking in two areas, my academic and technical abilities. That’s when I decided to pursue another master’s degree but now in electrical engineering with a focus in space systems engineering. I was planning on working full time as well and decided to pursue internship opportunities along the way. I still wanted to develop my skills as a professor so in my first semester, I started working as a youth development professional at the Boys and Girls Club where I taught third/fourth and fifth/sixth graders computer literacy after school. And during the school day, I taught pre-algebra, algebra I/II, precalculus, and calculus to high schoolers. These students reminded me of how they also came from difficult backgrounds and that was a key strength that I was able to develop in working with them. From there I was able to travel across the country to work at aerospace companies such as Blue Origin, Blue Canyon Technologies, and MIT Lincoln Laboratory. Where I’ve been able to work on software and hardware components for spacecrafts.